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National Tuberculosis Association

Tuberculosis among the North American Indians

Washington

1923

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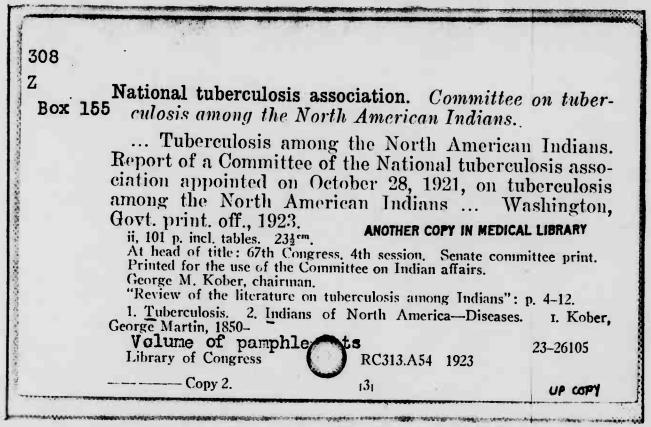

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National tuberculosis association. *Committee on tuberculosis among the North American Indians.*

... Tuberculosis among the North American Indians. Report of a Committee of the National tuberculosis association appointed on October 28, 1921, on tuberculosis among the North American Indians ... Washington, Govt. print. off., 1923.

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ii, 101 p. incl. tables. 23½cm.
At head of title: 67th Congress, 4th session. Senate committee print.
Printed for the use of the Committee on Indian affairs.
George M. Kober, chairman.
"Review of the literature on tuberculosis among Indians": p. 4-12.
1. Tuberculosis. 2. Indians of North America—Diseases. I. Kober, George Martin, 1850-

Volume of pamphlets
Library of Congress RC313.A54 1923 23-26105
Copy 2.

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TECHNICAL MICROFORM DATA

FILM SIZE: 35mm REDUCTION RATIO: 10:1 IMAGE PLACEMENT: IA (IIA) IB IIB

DATE FILMED: 3-28-97 INITIALS: MS

TRACKING # : 23030

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67th Congress
4th Session
SENATE COMMITTEE PRINT

TUBERCULOSIS AMONG THE NORTH AMERICAN INDIANS

REPORT OF A COMMITTEE OF
THE NATIONAL TUBERCULOSIS ASSOCIATION
APPOINTED ON OCTOBER 28, 1921,
ON
TUBERCULOSIS AMONG THE
NORTH AMERICAN INDIANS

Printed for the use of the Committee on Indian Affairs

WASHINGTON
GOVERNMENT PRINTING OFFICE
1923

COMMITTEE.

GEORGE M. KOBER, M. D., LL. D., *Chairman.*

WILLIAM H. BALDWIN.
HOYT E. DEARHOLT, M. D.
ALBERT B. TONKIN, M. D.
GEORGE E. BUSHNELL, M. D.
JOSEPH A. MURPHY, M. D.

U.S. Dept. Int. 1924

REPORT ON TUBERCULOSIS AMONG THE NORTH AMERICAN INDIANS.

INTRODUCTION.

The undue prevalence of tuberculosis among our North American Indians has been a matter of serious concern for a number of years to all interested in the perpetuation of the aborigines of this country.

In February, 1919, the Nebraska Tuberculosis Association, through the executive secretary, Mrs. K. R. J. Edholm, expressed to the national association an interest and desire to ascertain the degree of tuberculosis infection among the Indians of Nebraska and received an encouraging response. This was followed by an appropriation of $1,000 from the association to aid in financing a survey conducted by Dr. Margaret W. Koenig, with the cooperation of the Nebraska Tuberculosis State Association and the department of sociology of the State University. The survey was limited to the Nebraska Winnebago Indians, and a very able and interesting report of 48 pages, with tables, charts, and illustrations, was published by the Nebraska State Historical Society in 1921.

On January 3, 1920, the advisory committee on Indian health of the Oklahoma Tuberculosis Association held a very interesting meeting in Oklahoma City for the purpose of discussing the Indian health problem, with special reference to tuberculosis, infant mortality, venereal diseases, and the "mescal button," or peyote habit.

In the meantime the executive committee of the National Tuberculosis Association appointed Dr. George M. Kober a committee of one to advise the association on matters relating to tuberculosis among the Indians. Doctor Kober, after a careful study of the subject, concluded that the tuberculosis problem was not limited to any particular tribe of geographical region, but involved the entire Indian population in the United States. He also felt that in order to accomplish the greatest amount of good the cooperation of the Bureau of Indian Affairs was absolutely essential. Hence, after several informal interviews with officials of the Bureau of Indian Affairs the following letter was addressed:

WASHINGTON, D. C., *October 10, 1921.*

Hon. CHARLES H. BURKE,
Commissioner of Indian Affairs,
Department of the Interior, Washington, D. C.

DEAR SIR: I have the honor to inclose herewith a letter from Dr. Charles J. Hatfield, managing director of the National Tuberculosis Association. I was appointed last year a committee of one as an advisor to the executive committee of the association in matters relating to tuberculosis among our Indians. The inclosures are the first matters referred to me for an expression of opinion. I may state that our association hopes to be useful in reducing the undue prevalence of tuberculosis among the North American Indians, just as it has been helpful in reducing the mortality among the white and colored population since 1905. To this end we pledge our hearty coopera-

tion. Our executive committee meets on the 28th instant, and I shall be glad to receive from you information on the following points:

First. Does your bureau desire our cooperation?

Second. Can you furnish us with statistics showing the morbidity and mortality rates from tuberculosis among our Indians, for as many years as possible?

Third. What, in the opinion of the chief medical officer of the bureau, are the most important predisposing causes for the spread of the diseases among the Indians?

Fourth. What recommendations have been made for the alleviation of existing evils?

Fifth. What cooperation on the part of the National Tuberculosis Association will be most helpful in the efforts of the bureau to secure the desired results?

I gathered from the interviews with Mr. Garber and Doctors Newberne and Lloyd, of your bureau, that sufficient surveys have already been made as a basis for remedial action. If such is the case, I shall be glad to recommend to our association the appointment of a special committee to examine the facts and recommendations of your bureau, and if well founded do all in its power to aid in securing congressional action.

In view of the fact that the death rate from tuberculosis among the colored population in the District of Columbia has been reduced since 1905 more than one-half, I am very hopeful about the solution of the tuberculosis problem among the Indians, for it may be that they, like the negro race, were victims of unfavorable environments and may likewise respond to improved environments.

Respectfully submitted.

GEO. M. KOBER.

DEPARTMENT OF THE INTERIOR,
OFFICE OF INDIAN AFFAIRS,
Washington, D. C., October 13, 1921.

Dr. GEORGE M. KOBER,
Secretary National Tuberculosis Association, Washington, D. C.

MY DEAR DOCTOR KOBER: I beg leave to acknowledge the receipt of your letter of October 10, 1921, with inclosures relative to tuberculosis among Indians.

I assure you that the cooperation of the National Tuberculosis Association in the matter of combating this dread disease will be very greatly appreciated.

In submitting the following brief table of morbidity and mortality rates from tuberculosis, I wish to remind you of the peculiar difficulties attending the collection of accurate statistics of this character among Indians:

Year.	Number cases per 1,000.	Number deaths per 1,000.	Year.	Number cases per 1,000.	Number deaths per 1,000.
1912	136	10.40	1916	120	6.40
1913	121	9.71	1918	109	6.30
1914	121	9.19	1920	120	6.08

The more important predisposing causes of the spread of this disease are considered to be:

1. Overcrowded homes with improper ventilation.
2. Lack of proper facilities for the segregation of advanced cases.
3. Ignorance or indifference to ordinary precautionary measures.
4. Improper or insufficient diet.

Relative to recommendations for the alleviation of these evils many modern cottages have been constructed with provision for proper ventilation, and many more are needed.

Six special tuberculosis sanatorium schools have been provided for the incipient cases. Other hospitals in the service also receive tuberculosis patients. One of the great needs of the service is sufficient sanatorium accommodations for the segregation and treatment of the open advanced cases. Efforts, only partially successful, are being made to segregate this class of patients in tents and cottages erected near their homes.

The cooperation of your association will be very helpful in an advisory capacity, and I shall be glad to have you recommend the appointment of a special committee to examine facts and recommendations of this bureau and to aid in securing congressional action.

Further survey of the tuberculosis situation among Indians would be of value, if sufficient means are provided to remedy conditions already known to exist and those disclosed by such further survey, and this office will welcome any action you may desire to take in this direction.

Sincerely yours,

C. H. BURKE, *Commissioner.*

At a meeting of the executive committee of the National Tuberculosis Association, held October 28, Doctor Kober presented a preliminary report and recommended the appointment of a special committee on tuberculosis among the Indians. The recommendation was approved, and President Miller appointed the following: Mr. William H. Baldwin, Dr. George E. Bushnell, Dr. Hoyt E. Dearholt, Dr. Joseph A. Murphy, Dr. Albert B. Tonkin, and George M. Kober, chairman.

THE TUBERCULOSIS MOVEMENT AMONG THE INDIAN POPULATION.

The committee deemed it extremely desirable to determine if possible the tuberculosis movement among our Indian tribes as far back as possible. Unfortunately, however, the importance of vital statistics had not been appreciated in some departments of the Federal Government. The Bureau of Indian Affairs has estimates and reports of Indian population from 1759 to 1921, but no reliable mortality statistics prior to 1911. (See Appendix A.) When we wish to study the health movement of any particular population, whether it is getting better or worse, and judge correctly the effect of certain health-injurious factors and subsequent sanitary measures, we should not only know the number of deaths but also the amount and character of the prevalent disease, together with accurate information as to the number of population at different ages. The absence of such statistics is not surprising when we remember that there was no organized Indian medical service prior to 1875, and that even in 1900 only 10 States had anything like a satisfactory system of vital statistics.

The committee believed that some helpful information might be obtained by the following questionnaire:

NATIONAL TUBERCULOSIS ASSOCIATION.

The committee on tuberculosis among the Indians will greatly appreciate your cooperation in securing information on the following points. Please mail your reply to Dr. George M. Kober, chairman, 1819 Q Street NW., Washington, D. C.:

1. Have you statistics which indicate an increase or decrease in the spread of tuberculosis among Indians?
2. What, in your opinion, are the most prominent predisposing causes in the spread of tuberculosis among the Indians?
3. What methods have been adopted by the Federal and State authorities and State or local tuberculosis associations to diminish the spread of the disease among the Indians?
4. What remedial action would you recommend for the alleviation of existing conditions?

This questionnaire was mailed by the executive office in New York to the various State agencies likely to possess information on the subject. Dr. R. E. L. Newberne, chief medical supervisor of the Indian Service, suggested that the bureau would be glad to cooperate with the committee, and as a result the same questionnaire was transmitted by bureau to all physicians and superintendents of Indian agencies.

REVIEW OF THE LITERATURE ON TUBERCULOSIS AMONG INDIANS.

Pending the receipt of answers, a careful review of the literature on tuberculosis among the Indians was undertaken. The committee is under great obligations to the writings of Dr. Ales Hrdlicka, entitled "Physiological and Medical Observations Among the Indians of Southwestern United States and Northern Mexico" (Bull. 34, Bureau of Amer. Ethnology, Washington, 1908, L–VIII, pp. 1–425) and "Tuberculosis Among Certain Indian Tribes of the United States" (Bull. 42, Bureau of Amer. Ethnology, 1909, pp. 1–48).

The bibliographical data and extracts from the literature collected by Hrdlicka, Matthews, Bushnell, Kober, and others have been arranged in a chronological order. This compilation reveals much valuable information concerning the prevalence and spread of tuberculosis among the aborigines of this country since 1633.

Those who believe that tuberculosis attacks without any racial preferences, but that the ravages of the disease are greatly influenced by unfavorable surroundings and economic conditions, and that the advent of the white man created a struggle for existence and subsistence which favored the development of the disease and that the red man, like the white or black races, responds to improved environments, will find in the following pages considerable evidence in support of this opinion.

HISTORICAL DATA.

1633–1634: Jesuit Relations (Thwaite's edition, VI, p. 263); Le Jeune's Relation (Montagnais) referring to what he believes to be scrofula, says: "They are nearly all attacked by this disease when young, both on account of their filthy habits and because they eat and drink indiscriminately with the sick."

1653–1654: Father le Mercier's Relation, New France Algonquians (vol. XII, p. 195): "At Tadoussac a child was afflicted in a terrible manner with scrofula on his neck, and his entire throat was being eaten away by it, while the little girl suffered from a hemorrhage which was reducing her to a skeleton."

1657–1658: Jesuit Relations (XLIV, p. 267), refers to a full-blood Huron girl with consumption.

1672–1673: Jesuit Relations (LVII, p. 165), refers to a poor woman who had been consumptive for two years.

1672: Josselyn, J., in his New England's Rarities (London, 1672, reprint, Boston, 1865, p. 90), refers to "Oak of Cappadocia, excellent for stuffing of the lungs upon colds, shortness of wind, and the ptisick, maladies that the natives are often troubled with."

1675: Josselyn, J., in An Account of Two Voyages to New England (London, 1675, reprint, Boston, 1865, p. 102): "In New England the Indians are afflicted with pestilent fevers, plague, black pox, consumption of the lungs, falling sickness, King's evil, and a disease called by the Spaniards, the plague of the back, with an empyema."

1683–1694: La Hontan in his New Voyages to America, two volumes, London, 1703, referring to the Canadian Indians during the period of 1683–1694 (vol II, p. 47), writes: "It throws all of em into that languishing disorder which we call a consumption. They look pale, livid, and ghastly, like skeletons."

1696–1702: Jesuit Relations (LXV, 47, Montagnais), referring to the missionary among the people: "Sometimes he is made ill by the stench of those who have scrofula, with whom he even drinks out of the same kettle."

1720–1730: Jesuit Saguenay Relations (LXVIII, p. 61, Montagnais): "All, with the exception of a young child attacked by scrofula, were in wonderful health."

1724: Lafitau, J. F., in his Moeurs des Sauvages, Ameriquains, etc., Paris, 1724, deals mainly with the Indians of New France, on pages 360–361, volume 2, refers to scrofula and phthisis.

1788–1807: Hildreth, S. P., on the Climate and Diseases of Washington County, Ohio (Am. Jour. Med. Sci., February, 1830), treats of the period of the settlement of the region by whites, from 1788 to 1807, on page 326, writes: "The aborigines were subject to few diseases and those of an inflammatory nature; phthisis pulmonalis, at this early period, was a disease nearly or wholly unknown." Appearance of a few cases in 1808 and slow increase thereafter are noted; also that scrofula was increasing (1829).

1794: Rush, Benj., in Free Thoughts upon the Cause and Cure of Pulmonary Consumption, Medical Inquiries and Observations (2d ed. Philadelphia, 1794, page 196) says: "It (pulmonary consumption) is unknown among the Indians in North America."

1804–1806: Lewis and Clark, Travels to the Source of the Missouri River, etc., 1804–1806 (London, 1814, p. 341), referring to the Chopunnish, or Nez Perces Indians, write: "They are generally healthy, the only disorders which we have had occasion to remark being of a scrofulous kind, and for these, as well as for the amusement of those who are in good health, hot and cold bathing is very commonly used." * * * On page 549: "We had a number of patients afflicted with scrofula, rheumatism, and sore eyes * * *. The scrofulous disorders we may readily conjecture to originate in the long confinement to vegetable diet."

1819–1820: James's account of S. H. Long's expedition, 1819–20, in Early Western Travels (Thwaite's ed., XVI) referring to the plains of the Platte, the upper Arkansas, and the Red Rivers of Louisiana, says, page 132: "It is true that few, if any, instances of pulmonary consumption occur among the Indians of this region. The same remark is probably true of the original native population of New York and New England."

1822: Morse, J. A., Report to the Secretary of War of the United States on Indian Affairs, etc. (New Haven, 1822, p. 347, appendix), referring to the Indians east of the Rocky Mountains and North of Missouri, states: "They are, in general, subject to few diseases. The venereal complaint is common to all the tribes of the north; many die of consumption."

1822: Hunter, J. D., Remarks on Several Diseases Prevalent among the Western Indians, etc. (Am. Med. Recorder, Philadelphia, 1823, V, p. 408–417), says, on page 416: "I have known pulmonary consumption to occur among the Indians. It is rarely seen, however, except in those who are addicted to intemperance, and even in these it is by no means so common as among the whites. I have never known it to affect a person before puberty, and very seldom under 20 years of age. It appears for the greater number between the ages of 20 and 40 years * * *. Females less subject than males." The same author in an article in the Medical and Physical Journal, New York, 1822, pages 174–179, says: "Consumption exists among the Indians * * * in those who drink (exposure, etc.), but also in those who do not."

1824: The same author, in his Memoirs of a Captivity Among the Indians (3d ed., London, 1824, pp. 432, 433), says: "Among the Osages I have known two cases of what I now suppose to have been white swellings. Neither subject was more than 15 years of age. One was of the knee and the other of the ankle joint."

1834: Maximilian's travels in the interior of North America in Early Western Travels (Thwaite's ed., XXII, p. 236), Sankee Indians from Lower Missouri: "One of their most distinguished warriors * * * suffered severely from consumption."

1837: Morton, S. G. (illustrations of pulmonary consumption, etc., Philadelphia, 1837), includes a letter on consumption among the Indians by Dr. Z. Pitcher. Speaking of the Chippewa, Ottawa, Menominee, Osage, Pawnee, Omaha, Kansas, Creeks, Cherokee, Choctaw, Seneca, Shawnee, and Delawares, the author, on page 312, says: "Consumption is a disease familiar to all those with whom I have had any personal acquaintance, and I think that I may also go further and state, without fear of contradiction, that it is prevalent among all the natives of the northwest section of our continent."

The author learned of the disease among the Mandans in Missouri, and from officers of the Hudson Bay Co. regarding all tribes under their jurisdiction. It is his opinion (p. 313) that consumption is of more frequent occurrence than scrofula among the Indians * * *. Scrofula per se is oftenest to be seen in those tribes who stand as it were midway between the savage and civilized state, but even then not as often as consumption.

Page 315 (Doctor Pitcher): "So far as I am capable of forming an estimate of comparative frequency of both scrofula and consumption in the two races (white and Indian) I should say that the result is decidedly in favor of the red man."

1838: Wilkes, Charles, Narrative of the United States Exploring Expedition 1835–1842 (Philadelphia, 1845, IV, p. 512): "Among the Sachet of Oregon, pulmonary complaints are very common and occasion great suffering. The diseases most often met with are bronchitis and tubercular consumption."

1829: "Farnham's travels in the great western prairies," etc., 1839, in Early Western Travels (Thwaite's ed., XXVIII, p. 159), speaking of the Chippewa, the writer says: "They have conjurers who cure diseases * * * as rheumatism, flux, and consumption."

1842: Blaschke, E. Topographia Medica portis Novi-Archangelscensis (Petropoli, 1842, 1862, 1866, 1869), reports consumption and scrofula to be common among the natives of the region.

1835–1846: Williamson, Thomas S., The Diseases of the Dakota Indians (Northwestern Medical and Surgical Journal, St. Paul, Minn., 1874, IV, pp. 410–419). This medical missionary in recording his observations, made between 1835 and 1846, among the Sioux Indians of Minnesota, at a period, when by the destruction of their large game and by encroachments of white settlers, they had just begun to change their diet and habits of life, writes on page 419, as follows:

"Of those over 10 years of age who died of disease (violent deaths were the most common in those wild days), I think fully one-half died of consumption (phthisis pulmonalis) nor does this seem strange to me, as from your letter it appears to you" (Doctor Stuart is addressed), for I do not think it was much more prevalent among the Indians than among our white population, while from the fact that they were all tainted with scrofula, their mode of life, etc., it might be expected that it would be very much more so * * *. The great proportion of phthisis was chiefly owing to so few dying of other diseases.

"Notwithstanding the many deaths from violence, while I was at Lac qui Parle the number of births very much exceeded the number of deaths * * *. Among the women and children who remained in the neighborhood during the winter, scrofula was almost universal, caused by their subsisting entirely on corn for weeks, and, in some years, for months. Enormous swellings formed about their necks and armpits, and occasionally on other parts of the body, forming abscesses which sometimes so exhausted the system as to prove directly fatal, but more frequently by inducing phthisis or mesenteric diarrhoea. In the spring when the ducks returned, so that they could get animal food, most of them got better and some entirely recovered. Notwithstanding the prevalence of scrofula and much suffering from want of food and clothing, if it had not been for violent deaths they would have increased in numbers nearly as fast as our own population."

On page 415: "Scrofula was certainly less prevalent among the Indians of the plains subsisting on buffalo meat than among those under his observation; those of the plains generally appeared real healthy, with the exception of sore eyes."

Dr. Washington Matthews, United States Army, in his study of consumption among the Indians (Trans. Am. Clim. Assoc., 1888), tells us, on page 143, that the Dakota or Sioux Nation was a numerous people and ranged in various bands over a territory so wide that many years elapsed before the middle and western divisions fell under the same influences which proved so destructive to those of eastern Minnesota in 1835. Thirty years later, in 1865, Doctor Matthews visited and observed the bands who lived in Dakota and Montana. Scrofula was not then observed among them and consumption was but little known. But 22 years more have passed, and we have from Dr. Frederick Treon (Jour. Am. Med. Assoc., February, 1888) the following sad account of the unsanitary progress of the Yanktonai (Dakota Indians):

"The first diseases to which my attention was directed when I reached the agency were consumption and scrofula * * *. Out of 57 deaths, 40 were from consumption, 4 from scrofula, and only 9 from other diseases, while 4 were accidental. I have noticed that patients who have enlarged glands and scrofulous sores do not, as a rule, have phthisis pulmonalis. I do not consider my experience sufficient to warrant me in saying this will not happen, but my observation for the year supports the assertion."

1840–1848: Stratton, Thomas, "Contribution to an account of the diseases of the North American Indians" (Edinburgh Med. & Surg. Jour. 1849, LXXI, pp. 269–283). The paper contains Dr. A. Digby's and P. Darling's reports on consumption and scrofula among the Ottawa and Chippewa of the Manitoulin Island and the Six Nations along Grand River (period 1840–1848).

According to P. Darling, there were treated among the 800 Ottawa and Chippewa who came under his observation (*a*) from October 10, 1840, to August 16, 1841, scrofula 2, or "enlarged glands" 13, consumption not mentioned; (*b*) from August 16, 1841, to December 31, 1842, phthisis 12, no mention of scrofulous glands; (*c*) from January 1, 1844, to December 31, 1844, phthisis 4, no mention of scrofula; (*d*) January 1, 1847, phthisis 3 (no mention of glands).

According to Doctor Digby, there were among the 2,200 Indians belonging to the Six Nations between March 1, 1847, and March 1, 1848, a total of 54 deaths, with 4 deaths from phthisis.

1848: Romanowsky, Observations dans le Colonies Russes de le Amérique (Jour. Med. de Russie, 1848, No. 20), reports phthisis to be very prevalent among the natives of the Aleutian Islands, principally among the mixed bloods who lead debilitating lives.

1849: Ross, A., Adventures of the First Settlers on the Oregon or Columbia River (London, 1849, p. 308), tribe Oakinackens, and others:

"The diseases most frequent among these people are indigestion, fluxes, asthmas, and consumption. The same author in Early Western Travels (Thwaite's ed., VII, p. 111), referring to the Chinooks (period of 1810–1813), writes: "Consumption and the venereal diseases are the complaints most common amongst them."

1855: Moses, I., On the Medical Topography of Astoria, Oregon Territory (Amer. Jour. Med. Sci., January, 1855, pp. 32–46), reports scrofula and phthisis prevalent among the Indians of the region. Gives no statistics or history.

1857: Heger, A., Sanitary Report, Fort Simcoe, Washington Territory (United States Army reports, 1855–1859, Washington, 1860, p. 263), speaking of the Yakima Indians, in 1857, says: "Their prominent diseases are phthisis, catarrhal and rheumatic affections, fevers, scrofula, variola, and venereal diseases * * *. Scrofula is of frequent occurrence, and phthisis is very prevalent among them and always fatal."

1857: Suckley, Dr. George, United States Army, stationed at Fort Steilacoom, Washington Territory (Trans. Am. Med. Assoc. 1857, X), referring to the Indians in that Territory, on page 215, says: "Throughout the country phthisis pulmonalis appears to be the most common nonspecific disease with the aborigines * * *. On the coast and in the settled districts, although hardships and scarcity of food do not exist in any proportion to what is encountered in the interior, yet the same disease is even more common." Page 216: "Strumous diseases are very common and are rapidly increasing. The most common of these are caries of the spine, morbus coxarius, and glandular ulcerations."

1861: Bouchardat, M., L'Ann. de Thérap (Paris, 1861, p. 71), gives a note on tuberculosis among the Hudson Bay Eskimo.

1864: Dr. Margaret W. Koenig, in her study of tuberculosis among the Nebraska Winnebago Indians, published by the Nebraska Historical Society in 1921, on page 2, informs us that these Indians were forced from their comfortable homes in Minnesota in 1863 to the Crow Creek Agency in Dakota Territory, where, broken in health and spirit, they faced the alternative of abandoning the agency or dying from cold and starvation. They chose to leave, and in the winter of 1863–64 many made their way to the Omaha Reservation in northeast Nebraska, arriving there in a destitute condition, a large number dying of cold and hunger on the way. Out of 2,000 taken to Crow Creek, over 1,200 had reached the Omaha Reservation by September, 1864. "When they came to this location they were affected with tuberculosis, syphilis, and other diseases. Many of them had scrofulous sores on their faces, necks, and bodies. At the time they came here and for many years after their necessities were such that they went about the country picking up domestic animals that had died and used the flesh for food. It was particularly noticeable that as soon as they set to work farming and procured means from their labor they improved in their habits, health, and general appearance."

Schoolcraft, Henry Rowe, in his History of Indian Tribes in the United States (published by Congress in 1857, p. 563) records similar observations.

1864: Kneeland, Dr. Jonathan, on Some Causes Tending to Promote Extermination of the Aborigines of America (Tr. Amer. Med. Assoc., Vol. XV., Philadelphia, 1865) referring to the Onondaga, a branch of the Iroquois, near Syracuse, N. Y., says: "Scrofula has set its seal on many adults and most of the children in the tribe in the form of scars on the neck and goitrous enlargements or diseased joints * * *. The percentage of deaths from pulmonary tuberculosis is very large; many young men and women from the age of 15 to 22 have died during the 10 years of my acquaintance with the tribe within a year after marriage."

Doctor Kneeland, in a personal communication to Doctor Matthews in 1887, stated that the population of this tribe varied during the preceding 34 years from 310 to 400. The number of deaths from consumption in 1859 was 2; in 1867, 4; in 1869, 3; in 1871, 5. (See also Miss Freeman's account on p. 57.)

1865: Glisan, R., Climate and Diseases of Oregon (Am. Jour. Med. Sci. 1865, 73, 82, page 79): "At the close of the Rogue River War, the scattered remnants of all the tribes of Indians in Oregon, west of the Cascade Mountains, were moved on a reservation lying between the Williamette Valley and the Pacific Ocean, the total number being about 5,000 souls * * *. Here they enjoyed moderate health for a short period only. Diarrhoea, dysentery, pneumonia, consumption, and scrofula in all its varieties, soon became prevalent and carried them off in large numbers."

1869: Graham, J. B., Scrofula Among the Sioux Indians, Its Origin and Nature (Am., Pract., and News, Louisville, Ky., 1890, LX., 1–5). (At the time of writing scrofula was prevalent in the tribe.) Page 3–4: "According to Alex. Recountre, and others, the first case of scrofula particularly noted among the Brule Sioux, occurred in 1869 * * *. I do not think the case referred to was the first case of scrofula among them, but it certainly did not exist to an alarming extent before that time. The older Indians and their traditions say that scrofula, syphilis, and consumption were little or almost unknown among them until within the last 50 years."

1874–1894: Kober, George M., during his Army service from 1874–1894, came in contact with different Indian tribes. He first saw cases of scrofulous glands among the Indian warriors imprisoned at Alcatraz Island, Calif., in July, 1874, but no cases of pulmonary tuberculosis. He was stationed at Camp McDermit, Nev., from November, 1874, to July, 1877, where he observed the Paiutes. He subsequently came in contact with the Nez Perces, Spokane, and Klamath Indians, remaining with them until 1880, when again he came in touch with the Paiutes, near Fort Bidwell, in northeastern California. He does not recall a single case of pulmonary tuberculosis among them until after 1884, and then only among Indians who had exchanged their tepees for badly constructed and insanitary dwellings. After this he observed cases of pulmonary tuberculosis among adult Indians, and also a case of tubercular meningitis in a girl aged 10. Scrofulous manifestations became, also, more frequent in adults and children. The Indians quite generally attributed these diseases to the advent of the white man. Dr. Charles E. Woodruff, writing on Diseases among Northern California Indians (Med. Record, N. Y., January 24, 1891, XXXLX., pp. 104–106), referring to the Hupa Indians, northwestern California, states: "Some among them say they had not consumption before the advent of whites * * *. At the present time the disease is extremely prevalent and fatal."

It is Doctor Kober's belief that the Indians in Modoc County probably did not contract the disease from the white race, since during his entire practice, 1880–1894, covering 4,097 square miles, and with a population of about 5,000, he had only seen two cases of pulmonary tuberculosis among the settlers. As a matter of fact, the first white settlers arrived after 1865. It has often occurred to him that the introduction of cattle by the whites may have played a rôle in the spread of the disease. In this connection it should be mentioned that the scarcity of food compelled the Indians near Camp McDermit, Nev., between 1874–1877, to consume the flesh of domestic animals that had died. This same habit he found to exist among the Paiutes and Modocs in northern California from 1880–1894, and appears to have prevailed elsewhere.

While bovine tuberculosis is extremely rare among the range cattle of northern Oregon and California it is not infrequent among milch cows. The possibility of this primary source of infection can not be wholly ignored, since during his observations, prior to 1884, only adults and none of the children were affected with the glandular form of tuberculosis. The children were all breast fed.

It is also of interest to note that the census of 1880 gives the consumption rate of the Nevada Indians, which belongs to the same stock, at 45 per 1,000; and the Bureau of Indian Affairs, in Table No. 2, gives the rate at 23 and the percentage of deaths from tuberculosis to total deaths at 8.

In this connection, Kober recalls with genuine sympathy the story of the coming of the white man to Nevada, as related by Chief Winnemucca, after whom was named a now prosperous town on the Central Pacific Railroad in Nevada. Prior to 1849, according to the interpreter, his chief recalled only a few exploring expeditions, among them Lieut. John F. Fremont's expedition. During the gold fever excitement in California, and until the completion of the Union and Central Pacific Railroads, emigrant trains and mining prospectors became more and more frequent, and while numerous camping stations had a tendency to scare off the game, which was never very plentiful, these travelers did not arouse the animosity of the natives and no actual fighting occurred. It was not until 1863–1865 that permanent settlements of the whites began, locating usually on the best watered

sections in the country. Most of these lands were admirably adapted for stock raising, such as cattle, horses, mules, and sheep. It was not long before the Indians noticed the effects of these settlements on the destruction of their game, and the game that was not killed for food naturally found refuge in the higher and more distant and inaccessible mountain ranges. The gramma grasses, such as wild rye, etc., were eaten up by the stock, and soon caused a scarcity of cereals on which they depended for their starchy food. Naturally enough the Indians "got mad," and began to attack the whites with their bows and arrows. The settlers promptly returned these attacks with firearms and the casualties were numerous on both sides. The settlers appealed to the Government for protection and, as a result, troops, both State and Federal, arrived, resulting in more bloodshed and the establishment of a chain of military posts, such as Fort Boise in Idaho, 1863, Fort McDermit, Nev., 1865, Camp Warner, in southeastern Oregon, 1865, Fort Bidwell, in northeastern California, in 1865, and Fort Halleck, in Nevada, in 1867. These posts greatly aided the settlement of a large territory, essentially fitted for stock raising, but they also destroyed the hunting grounds of the Indians, and the pangs of hunger, and not a depraved appetite, compelled them to eat the flesh and viscera of animals that had died from diseases.

General Crook had many encounters, not only with the Paiutes but also the Snake River Indians, the Bannock, and Shoshoni in northern Idaho; a brief but sad account of the effects of the Rogue River war in Oregon in 1865, by Doctor Glison, was given on page 26. As late as 1874 the Modoc, Klamath, and Pit River Indians, with a good sprinkling of Paiutes, fought in the so-called Modoc war in the lava beds in California, during which Gen. E. R. Canby was killed. The remnants of these bands are now on the Klamath Indian Reservation. The Bannock Indians had an uprising as late as 1877. Chief Winnemucca, true to his promises to General Crook, remained loyal to the Government until his death. He was the type of a great Indian chief. He had a magnificent physique, noble carriage, and was a splendid orator and most solicitous about the future of his people. The writer was deeply impressed by his story of the sad effects of the ever-increasing encroachment of the whites upon the food supply of his people and the utter disregard by the settlers of the rights of the original owners. The Government, it is true, offered him and his numerous small bands scattered over northern Nevada, California, and southeastern Oregon, refuge on the Klamath Indian Reservation, but the love for the home of his ancestors and the scenes of his boyhood days which had witnessed the joys and sorrows of a most eventful career were dearer to him than the prospects of being cared for as a ward of the Nation. His pathetic plea to be permitted to live and die away from a reservation was fortunately granted by General Crook and the Government. He lived to a good old age and was buried near Eagle Mountain, in northern California. He was not only a great chief, but also a philosopher, a man with a soul, who thirsted for knowledge regarding the life beyond. He could neither speak nor understand the English language. Not many years before he passed away his interpreter astonished the writer by the question, "Winnemucca wants to know where you think Indian man goes when he dies."

It is needless to say that an honest effort was made to convince him that the Great Father believed in the universal brotherhood of man. The conversation lasted over two hours, during which many relevant questions were asked, which were by no means easy to answer. The most difficult questions involved the matter of evidence as to a future life, and how the Great Father could permit the perpetration of so many hardships upon the Indian race, involving their very existence. To him it was clear that the Indian was a vanishing race, and nothing short of a miracle could save them from complete extermination. The most pathetic feature of the interview was when the interpreter said "Winnemucca thanks you very much for your kind words, but hopes that if there is a heaven, Indian man will go to one place and white man to another. He mixed them up on this earth and white man got everything, and Indian man got nothing." Such is the simple but truthful conception of the rights of the Indian race to exist, uttered by a man who, when the writer first met him in 1874, still wore a metallic ring in his nose. That he did not hate the white race and was capable of appreciating words and acts of kindness to his race is shown by the fact that he requested his son to deliver after his death to the writer a gold ring presented to him by the town of Winnemucca as a token of gratitude.

This is not the time nor place to enter into a discussion of remedial measures, except to indicate that it is not yet too late to right the wrongs and save the race from utter destruction, and with this object in view, suitable recommendations will be presented at the close of this report.

1885: Mathews, Dr. Percy W. (Canada Medical and Surgical Journal, March, 1885), who had many years of experience among the Hudson Bay Indians, says: "Scrofula without tubercle, so far as it refers to glandular swellings, more or less ulcerations and indolent abscesses, is far from uncommon, and several cases of strumous diseases of joints have also come under observation during my practice at York. * * * It is a matter of some surprise that phthisis is not more prevalent among the Indians, when we take into consideration that nothing is wanting to exaggerate their strumous habit or develop it more generally as complicated with scrofula. Within the last six years, I have had three cases, one acute phthisis and two tubercular phthisis. Before concluding my remarks on tubercle, I may mention that several cases of death have taken place from tubercular meningitis and tubes mesenterica."

1881: Bushnell, George E., in his Study of the Epidemiology of Tuberculosis (Wm. Wood & Co., New York, p. 159) says: "In 1881 the writer had medical charge for about three months of 2,800 Sioux prisoners of war. These Indians had surrendered during the previous winter, after a long warfare. They consisted of two classes, first the 'wild' Indian, who had but little contact with the whites. There were some among the number who were said to have but recently seen a white man's house for the first time. The second class consisted of agency Indians. When the warriors of the first class fell ill, it was because they had overeaten at some feast; the agency Indians were more sickly. Enlarged cervical glands were very common, and, occasionally, a child died with swollen abdomen, the disease probably being tuberculous peritonitis * * *, but no cases of pulmonary tuberculosis came under observation.

"Here was the mingling of two streams, the one kept free of the diseases of the whites, by enforced separation through continuous warfare (for their captivity marked the close of the Sioux wars, save for the abortive outbreak at Pine Ridge); the others contaminated by the diseases and vices of civilization. The writer, Colonel Bushnell, has frequently seen the scrofulous youths from the agency, their fleshless limbs fully clad, looking on wistfully at the dances of the warriors in the summer twilight, where braves, stripped to the breech-clout, danced on the grass to the music of the tom-tom, reproducing, in pantomime, their exploits in border warfare, or in horse stealing, and revealing in many instances a magnificent physique and a boundless vitality, which contrasted cruelly with the listless aspect of some of their spectators. The two streams became one, when the Indians abandoned their tepees and took up their residence in houses under guidance of the agency officials.

"According to Dr. J. R. Walker, in a paper read before the National Tuberculosis Association (Am. Jour. Med. Sciences, Phila., Oct., 1906), there were in 1896, 4,893 Ogalala Sioux (the greater number of the captives referred to by Bushnell belonged to this band), of whom 741 were tuberculous, and of these 124 died in that year; that is, 148.7 per 1,000 were known to be tuberculous, and the annual death rate from tuberculosis was 25.3 per 1,000. It is reported by Brewer (cited by Woods Hutchinson, N. Y. Med. Journal, vol. 86, 1907, pp. 624–673) that tuberculosis was responsible for 95 per cent of the deaths among the Mohaves; that among the Pimas and Maricopas it caused 66 per cent of the deaths; and that it is very prevalent among the Hopis and Navajos, but, on the other hand, the report from another Navajo Reservation was that tuberculosis was not very prevalent, but was always fatal, and again, that among the Zunis the actual amount is small but the mortality is 100 per cent."

In writing of primary tuberculosis in Indians of the Northwest, Colonel Bushnell, on page 75, cites the description of Woods Hutchinson as it affects the Indian population of the Pacific Northwest, who says: "I could hardly believe my ears when some of the agency physicians assured me that they had seen adult braves die in three weeks of tuberculosis. All united in the statement that the disease usually ran its course in about nine months in adults, seldom extending beyond a year, and taking children into consideration, the average duration of the disease from start to fatal termination would not average more than four to six months. Moreover, those who went into details described a new and curiously uniform type of the disease, beginning with fatigue, shortness of breath, pallor, or blueness of the lips, rapid pulse, and frequently abnormal temperature, with exceedingly rapid consolidation of the lungs, beginning with the apices. The patients would lose weight with frightful rapidity, fall into a muttering delirium, and die of heart failure, much as in septic pneumonia or in typhoid. Nearly all of them also had been struck with the large amount of glandular tuberculosis both in the fatal cases and in the survivors."

1886–1888: Matthews, Washington, in his paper on Consumption Among the Indians (Trans. Am. Clim. Assoc., 1884), gives the results of his 21 years' observation on this subject in a dozen different States and Territories. His first experience was among the wildest tribes then existing on our continent, among the least influenced by civilization, prosperous, well nourished, dwelling in the heart of the buffalo range of the upper Missouri and the Yellowstone Valleys, and even there, much to his surprise, found that cases of consumption were by no means infrequent, adding: "As the years went by, and it fell to my lot to revisit, at long intervals of time, tribes which I had known in earlier days, I became impressed with the idea that this disease was on the increase among them * * *." Page 235: "In no place where I have practiced among them have I failed to observe or learn of cases of consumption, except in Owens Valley, Calif., a locality which is favored with perhaps the most salubrious climate within our borders. It may have existed there, but it did not come to my knowledge during a residence of nearly one year in an Indian population of about 800. Yet even here symptoms of scrofula were not entirely wanting."

Doctor Matthews gives the consumption rate per 1,000 among reservation Indians in 13 different States and Territories, as follows: Nevada, 45; California, 70; Arizona, 83; Colorado, 107; Nebraska, 150; Montana, 176; Dakota, 200; Oregon, 240; Idaho, 250; Washington, 302; Michigan, 333; Wisconsin, 361; New York, 625, and says: "It is seen in the foregoing table that in the States east of the Mississippi—the oldest States—where the Indians have been longest under civilizing influences, the consumption rate is the highest."

In his further contribution to the Study of Tuberculosis among Indians (Trans. Am. Clim. Assoc., Phila., 1888, p. 142), he says: "We have evidence that the wildest Indians in the earliest historic times were subject to consumption, yet they were not subject to it in a high degree, and it is probable that they suffered then from a different form of the malady to that which troubles the modern Indian. * * * We have evidence that scrofula begins to prevail among them when they cease to live by chase, and that it (scrofula) is a condition predisposing to consumption among them."

He evidently based this belief on his own observations, and the experience of Doctor Williamson, 1833–1846 (see p. 14), Dr. Jonathan Kneeland, 1864, (p. 20), and the following additional data: Rev. M. C. O'Brien, in a letter to Doctor Matthews in July, 1885, speaking of the Penobscot Indians, says, "I have always thought that consumption was mainly due to the prevalence of scrofula. Some have thought that this scrofula was due to the unhealthy diet of the Indians and their want of skill in preparing the food. At any rate a large number of Indians have scrofulous eruptions on the neck, and many others the cicatrices or marks of former scores. My impression is that consumption is quite prevalent and the most frequent cause of mortality. The proportion of deaths from this disease is far greater among them than among the neighboring whites of the poorer classes. Further, the disease is far more rapid in its course than among any class of consumptives I ever met."

Mrs. William W. Brown, of Calais, Me., in a letter to Doctor Matthews, August 7, 1888, writes, "I have just returned from Nova Scotia. While there I made some inquiries as to the prevalence of consumption among the Micmacs, and learned that though the tribe is slightly on the increase, of those reaching maturity about one-half die of consumption. Of course, this was conjecture on the part of my informant, as no record has been kept * * *.

"In regard to the Passamaquoddies of Maine I am able to state with more exactness. Prior to the year 1870 the tribe is said to have decreased, very gradually, however, as it was third in point of numbers of the four Wabanaki divisions. In 1876 there were 260 males, 248 females—a total of 508—and during that year there were 21 deaths. In 1879 the tribe numbered 523—273 males and 251 females—and there were 24 deaths, about one-third being children. In 1884 there were 24 deaths; 1885, 26; 1886, 26; 1887, 31; and up to date in 1888, 20. The tribe at present numbers 530 total, the births being in excess of the deaths.

"The disease, fatal to young and old, yet attacking the young most frequently, is of such a peculiar nature as to bear little resemblance to consumption, as people in general define that wasting disease of the lungs; a cough being rare, except in the aged. I have watched the progress of the disease in patients young and old, Indian and half-breed, and I notice the nearer white the blood the quicker the strength fails. In this malady a general lassitude is first noticed, then irregular action of the heart, and soon a swelling appears, oftenest near the neck glands, but I have seen it on upper and lower limbs, the face, hands, and feet. These swellings turn purple and scale off or suppurate and discharge, the body becomes

emaciated, and the eyes are affected, often resulting in blindness * * *. Phthisis pulmonalis is quite prevalent among neighboring whites, but not to any degree as prevalent as among the Passamaquoddies * * *."

Doctor Matthews adds: "There is little doubt that in Mrs. Brown's letter we find a description of phlegmenous scrofulide, and with the disease as the principal cause of mortality we have for this far-eastern tribe of Indians the following enormous death rate (fractions excluded) per thousand: 1870, 41; 1879, 45; 1884, 45; 1885, 49; 1886, 49; 1887, 58."

"We glean from the above letter that even within the last 12 years there has been a constant increase in the mortality of this tribe and that while consumption is quite prevalent the cachexia seems more prone to express itself in dermal and glandular than in pulmonary lesions."

EFFECTS OF CHANGE IN ENVIRONMENTS IN THE PREVALENCE OF TUBERCULOSIS.

Col. George E. Bushnell (Epidemiology of Tuberculosis) informs us, page 157, that:

Several hundred Apache Indians (Chief Geronimo's Band), among whom were comprised some women and children, were confined at Mount Vernon Barracks, Ala., in 1887. According to the report of the Surgeon General for 1896, the death rate in the first year, 1887–88, was 54.64 per 1,000, and during the second year, 48.96, but it ran up during the third and fourth years to 109.69 and 142.84, nearly one-half of which was due to tuberculous disease. At this time great improvement was made in their condition; a new village was built for them, and they were placed under the most vigilant sanitary supervision, with the result of bringing the death rate in 1891–92 down to 109.75; the next year to 80.93; and in 1893–94 to 98.36. The prisoners were transferred to Fort Sill, Okla., in October, 1894, the excessive mortality that had prevailed among them in Alabama being one of the chief reasons for effecting the transfer. Here they were assigned land and led a free life. At the end of the first year at Fort Sill it is reported that their condition was much improved, but that the death rate continued high, 83.05 per 1,000; yet it was thought that a large part of the mortality was referable to infection at Mount Vernon Barracks. Of the total of 25 deaths, 17 were due to tuberculous disease * * *. Glandular affections were very common among these Indians, but the deaths were chiefly due to pulmonary tuberculosis.

The following is an extract of a very detailed report from the Commissioner of Indian Affairs, received April 26, 1922:

While the health conditions of the Indians improved at Fort Sill and their industrial situation grew much better, they did not increase much in population. The band numbered 261 in 1894, when the death rate from disease, principally tuberculosis, was about 23 to the thousand of population, and in August, 1913, the census showed 264—an increase of only 3—but this does not represent the real gain, for had not the tide turned in their favor there would have been not much more than half the original number of 340 left. The ravage of tuberculosis had been checked and the band was now more than holding its own.

During the 17 years the Indians had lived at Fort Sill under the supervision of the military authorities they had become prosperous, peaceful, and contented; they had been taught to care for themselves, in a large measure, as agriculturists, stock raisers, and mechanics. They cultivated, individually, considerable patches of land, owned and branded their cattle, and were permitted to sell their agricultural products * * *. The smaller children of the band attended a mission school on the reservation and the larger ones were sent to nonreservation boarding schools—Chilocco, Okla., and Carlisle, Pa.

Geronimo died February 9, 1909, and was given a Christian burial by the church of which he had been a member for several years. The dream of the old man in the later years of his life was to return with his people to Arizona. After his death the Mescalero Apaches, a New Mexico tribe, extended an invitation to his followers to make their home on the Mescalero Reservation; 176 members of the tribe were in favor of doing this and went, but 88 chose to remain at Fort Sill.

In 1912 Congress made an appropriation for the settlement of the 176 Apache Indians in New Mexico and also made additional purchases of land for those who had chosen to remain on the Fort Sill Indian Reservation.

The Indians transferred from Fort Sill to the Mescalero Reservation from the date of their arrival on the said reservation became the "Fort Sill Apaches" to distinguish them from the "Mescalero Apaches." They are considered better workers than the Mescaleros, and through long years of varying vicissitudes they have learned, to some extent, the value of economy.

Neither the Chiricahua at Fort Sill nor the Chiricahua Apaches at Mescalero are now prisoners, having been released by an act of Congress in 1913. Many of them have lost their identity as members of the so-called Geronimo Band, some through enlistment in the United States Army, at Fort Sill, and some through enlistment at Fort Bliss, the nearest post to the Mescalero Agency, while others have given up reservation life altogether and are working at various trades in different parts of the country.

The census of those who still retain their former affiliations is as follows:

Chiricahua Apaches.	Males.	Females.	Total.
Kiowa Agency, Fort Sill	49	34	83
Mescalero Agency, Fort Sill	92	83	175
Total	131	117	258

NOTE.—On the Kiowa Reservation, there are 179 Apaches of a different kind, but in the band some Chiricahua Apaches have lost their identity with Geronimo's Band through marriage.

Prevalence of disease.—On the Kiowa Reservation, with an estimated total population of 4,707, in which the 83 Chiricahua Apaches are included, the estimate of tuberculosis is 9 per cent; while on the Mescalero Reservation with a population of 628, in which the 175 Chiricahua Apaches are included, the estimate of the prevalence of tuberculosis is about 17 per cent.

It is worthy of note that the Chiricahua Apaches are among the best health risks of the two reservations to which they appertain.

INDIANS IN THE UNITED STATES ARMY.

According to Bushnell's Epidemiology, pages 156–157:

General Orders, No. 28, Headquarters of the Army, March 9, 1891, authorized the recruitment of 8 troops of Indian cavalry and 19 companies of Indian infantry * * *. The Surgeon General, in his report of 1893, speaks of the increased consumptive tendency to which Indians are so prone when they give up their wild life for a semi-civilized mode of living * * *. The so-called experiment was discontinued in 1894.

The annual report of the Surgeon General of 1898 (cited by Bushnell, p. 146), gives the following ratios per 1,000 of strength for the decade 1886–1895 for tuberculosis of the lungs:

White soldiers—admissions 2.93, discharges 1.52, deaths 0.44; colored soldiers—admissions 3.93, discharges 1.85, deaths 0.84; Indians (1891–1894)—admissions 25.93, discharges 11.44, deaths 7.44 * * *.

Admissions to sick report furnish the best guide to the facts as to tuberculosis because many are discharged who die at a later date of the disease, so that the deaths in service do not represent the whole mortality. Colonel Bushnell, on page 157, writes:

It is evident that the experiment was not in general a success, so far as creating serviceable organizations is concerned. It does not appear that the conditions of health among the Indian soldiers constituted one of the reasons for their disbandment * * *, but the ratios of admission, discharge, and death of Indians from pulmonary tuberculosis * * * are enormously greater than those of the other troops.

THE CHEROKEE INDIANS OF NORTH CAROLINA IN 1888.

Dr. Washington Matthews, in his second paper on consumption among the Indians (Trans. Am. Clim. Assoc. 1888, p. 140), describes the Eastern Cherokee, living in North Carolina, as that portion of the Cherokee Nation which remained in its old haunts in North Carolina, when the greater part of the nation was removed to the Indian Territory in 1838, and writes:

They are surrounded by white settlements, and have, next to the New York Indians, lived longer in contact with civilization than any other tribe.

Mr. James Mooney, of the United States Bureau of Ethnology, visited these Indians in 1888 and found an annual consumption mortality of 11.2 per 1,000. Total deaths between 1883 and August, 1888, numbered 142; total births, 114; decrease, 28. The consumption rate was almost equal to the rate of the New York Indians, while these Eastern Cherokees had the advantage over the New York tribes of living in a mountainous region.

Doctor Matthews' final conclusions, on page 153, are:

I find nothing in the newly gathered evidence to invalidate the conclusions reached in my first paper, viz, consumption increases among Indians under the influence of civilization; and (2) that although of course no constant or symmetrical ratio can be shown to exist between the rate of mortality and the duration of this influence, yet, in view of all the evidence now before us, we may declare that some of the highest rates of mortality from consumption and other tuberculous diseases among Indians are found in communities which have been longest in contact with civilization.

THE CHEROKEE TUBERCULOSIS PROBLEM IN 1920, 32 YEARS AFTER.

In connection with the above it is interesting to note the following answer to the recent questionnaire by the committee, from Dr. L. B. McBrayer of the North Carolina Sanatorium, who writes:

The death rate from tuberculosis for all races in 1920 was 113.2 per 1,000,000. The death rate among the Indians is lower than among the white and black. There is no important Indian problem in this State. The death rate is not increasing.

Under date of May 31, Doctor McBrayer forwarded the following table and explanatory letter:

TABLE I.—*Showing total births, deaths, and rate, also tuberculosis (all forms) by race and years, for North Carolina, 1918–1921, inclusive.*

Year.	Race.	Births.	Rate per 1,000 population.	Deaths.	Rate per 1,000 population.	Tuberculosis (all forms).	Rate per 1,000 population.
1918	White	49,201	28.9	25,049	14.7	1,699	42.2
	Indian						
	Colored	21,933	28.5	17,362	22.5	1,792	233.1
1919	White	46,527	27.0	18,687	10.8	1,396	81.0
	Indian						
	Colored	23,264	29.9	12,260	15.7	1,609	207.2
1920	White	51,832	29.0	19,944	11.1	1,449	81.2
	Indian			123	10.3	12	100.5
	Colored	22,022	28.4	12,271	16.0	1,447	189.5
1921	White	60,529	33.9	17,795	9.9	1,208	67.7
	Indian	516	43.2	155	12.9	8	67.0
	Colored	26,411	34.5	11,072	14.4	1,425	186.6

Your letter of May 15 was duly received and I beg to inclose you herewith a report of the total births and deaths in North Carolina by races for the years 1918–1921, inclusive, as well as deaths from tuberculosis by races over the same period of time. You will notice that the Indian birth rate was not kept separate until 1921. A birth rate of 43.2 against a death rate of 12.9 does not look very much like a vanishing race, while, as you will note, the death rate from tuberculosis for that year is the same as the white.

This statement is fully sustained by the United States census of 1920, which reports that the Indian population in North Carolina has increased from 7,851 to 11,824. This is a most hopeful indication, because Doctor Matthews in 1888, referring to Cherokee Reservation Indians, declared, and his statistics justified the statement then made:

Here we have a band of Indians decreasing slowly in consequence of the excess of deaths over births.

In reference to the Onondaga Indians and other tribes of the State of New York, referred to by Doctor Matthews, we have the following information: Miss Minnie E. Freeman, of the Onondaga County (N. Y.) Tuberculosis Association, in a report dated February 28, 1922, writes:

We have no reliable statistics, but we are quite sure there has been a diminution in number of cases of tuberculosis in the last two years. * * * At a clinic held on May 12, 1921, of 58 cases examined, 5 were found to be positive, 5 suspicious, and 2 under observation. (See p. 114.)

The surveys made in 1919, and later in 1921 and 1922, on the Cattaraugus, Tonawanda, and St. Regis Reservations, in the State of New York, reveal a marked increase in the number of cases in the later surveys, but whether this is due to a more thorough physical examination or an actual increase in the spread of the disease, can not be determined.

Doctor Kerr, health officer on the Tuscarora Reservation, writing from Lewiston, N. Y., March 25, 1922, says:

I have no definite statistics, but would say that there is little if any improvement, due to the poor hygienic conditions and the close quarters in which they live during the winter season * * *. Much better hygienic conditions exist in their schools for the past five years than formerly. They have had a good deal of instruction on better methods of housekeeping and hygiene in their homes * * *. I have sent several of the Indians to the Niagara County Tuberculosis Hospital during the past few years, which should prevent the spread of the disease more than anything else.

The Rev. P. F. Hawthorne, Presbyterian missionary on the Allegheny Reservation, Salamanca, N. Y., writes, February 24, 1922:

I do not have any statistics which indicate an increase or decrease in the spread of tuberculosis among the Indians, but I am of the opinion that there is an increase.

Dr. A. D. Lake, physician to the New York Indian Agency and the Thomas Indian School, a State institution for 40 years, in a letter dated, Gowanda, N. Y., February 17, 1922, writes as follows:

The population of the school is 200 pupils, coming from all the reservations of the State. Thirty years ago the population was only 100, with a death rate of from 3 to 6 annually. Since that time there has been a gradual decrease of the disease, until now, with the pupil population doubled, the death rate will average about 1 in 4 years. Until 30 years ago, this school was poorly housed in old, insanitary, dilapidated, and crowded wooden buildings. These buildings have been replaced by structures of brick, largely increased in capacity, giving much additional air space, and with modern sanitation. To this betterment of conditions may be ascribed the decrease in disease and death rate. Although the prevalence of tuberculosis outside of the school on the various reservations is greater than among the whites surrounding them, it has largely decreased, this condition being most marked during the past 10 years * * *.

Unquestionably the appearance of tuberculosis among Indians everywhere is due in the first place to the rapid transition from the open wigwam and tepee to the crowded, ill-ventilated hut, with its small air space for each individual, and, secondly, to their ignorance of sanitation and to improper food, producing lower vitality.

Other causes producing lowered vitality, are the existence of syphilis and other debilitating diseases * * *.

IS THE NORTH AMERICAN INDIAN PECULIARLY PREDISPOSED TO TUBERCULOSIS?

In the light of our knowledge, gained by the foregoing historical review, there is no reason for assuming that the red man is peculiarly predisposed to this disease. Your committee is inclined to share the views of Fishberg, when he declared in his book on Pulmonary Tuberculosis (2d edition 1919, p. 290):

Tuberculosis is known to attack without any racial preferences. The small differences observed among the various divisions of mankind in regard to their liability to tuberculosis are traceable to social and economic causes. Moreover, the variations displayed by the different groups of white humanity, such as the differences in the incidence of the disease between city and country dwellers, rich and poor, those engaged in indoor and outdoor occupations, persons active in a dusty atmosphere, as compared with such as are working in clean, airy shops and the like, are just as great, often greater, than the differences observed in the white, black, red, or yellow races.

Those of us who have seen the Indians in the wild state, and admired their splendid physique and wonderful power of endurance, can not believe that such a race is destined to become extinct by reason of a peculiar susceptibility to tuberculosis. While it is true that the Indians, like the African race, have shown a nonresistance to the disease-producing causes which are afloat, the real cause is not inherent but due to the fact that they have been the victims of most unfavorable environments in the transition stage of their civilization, as shown by the following:

HISTORY OF TUBERCULOSIS OF THE AMERICAN NEGRO.

The experience of our old southern physicians indicates that the colored race while in bondage showed no evidence of physical degeneracy. The truth of this has been positively demonstrated by the records of the health office of Charleston, S. C., from 1822 to 1900.[1] The statistics show that from 1822 to 1830 the mortality rate from consumption was very high, over 400 per 100,000, but was practically the same for the white and colored population. The rate fell in the decade 1831 to 1840, to slightly over 300 per 100,000, and in the next decade, 1841 to 1850, to about 250; the declining rates remaining nearly equal for both races.

In the decade from 1865 to 1874 we note an enormous difference; the white rate was less than 200, the colored rate over 400; in 1875 to 1884 the white rate remained about the same, while the colored rate rose to over 600, and these marked differences were maintained up to 1900.

A recent inquiry revealed the following information from Dr. Wm. H. Davis, chief statistician for vital statistics, United States Bureau of the Census:

The mortality rate from consumption in the colored population of Charleston, S. C., in 1910 was 332.8 and in 1920 it was 262 (practically the same as before the Civil War). The rate for the white population was 111.4 in 1910, and 69.5 in 1920 (an enormous reduction since 1822).

[1] For further details see paper on Tuberculosis among the Negroes, by Thomas C. Jones. (Proc. 2d Annual Meeting National Tuberculosis Assoc., 1906, p. 97.)

In view of the intimate contact of the American negroes as domestics in the numerous white families, it can scarcely be claimed that the negro previous to the Civil War had not been exposed to general tuberculization. The above figures clearly show that he was tuberculized to the same degree as his master, and that for at least three decades their mortality rates from consumption ran parallel with those of the whites. It is evident, however, that coincident with their liberation their mortality rates increased with frightful rapidity, which, in the course of the next two decades, became double and treble that of the whites.

It is well known that the American negro in bondage was well housed, supplied with proper and nutritious food, well cared for in case of sickness, and free from the vices and dissipations of modern civilization. We can well conceive what radical changes the Civil War brought to the negro population when they left the plantations and domestic service and many of the comforts and necessities of life to seek refuge and liberty and enter the struggle for existence. From what is known of their hardships, privations, and bad housing conditions during their transition stage, there is little doubt that these and other economic conditions played the most important rôle in swelling their mortality rates.

EXPERIENCE IN WASHINGTON, THE DISTRICT OF COLUMBIA.

The rapid influx of a Negro population, estimated to have been between 30,000 and 40,000, in the National Capital, imperatively demanded immediate accommodations, in consequence of which hovels of every description arose as if by magic, much of the material having been obtained from abandoned Army camps and hospitals.

The report of the health officer in 1874 refers to these habitations as follows:

Leaky roofs, broken and filthy ceilings, dilapidated floors, overcrowded, below grade, having stagnant water underneath, no drainage, no pure water supply, no fire protection, having filthy yards, dilapidated, filthy privies and leaky privy boxes in bad sanitary condition generally, and unfit for human habitation, describes with few exceptions the conditions of these hovels.

In addition to the insanitary and overcrowded habitations, the majority of these poor people suffered from lack of food, and frequently allayed their hunger by consuming garbage. One of the committee (Kober) was a resident of Washington in 1871–1874, and can testify to the abject want and suffering of some of these people, even 10 years after they found refuge in the National Capital.[1]

The earliest published statistics of tuberculosis in the District of Columbia, arranged as to the white and colored races, cover the period from October, 1875, to September, 1876, inclusive.

The death rates per 100,000, for all forms of tuberculosis, were: White, 392; colored, 1,102. At this time the peak in the mortality from this disease was reached. The general death rate for the white population in that year was 21.04, and 42.86 per 1,000 for the colored,

[1] The influence of inadequate floor and cubic air space in favoring contact infections has been demonstrated by a number of writers, notably by Williamson of Edinburgh, Marie of Paris, Kober, Mr. Wm. H. Baldwin, and General Gorgas. The influence of economic conditions was clearly revealed by Gebhardt's analysis of the statistics of Hamburg (see Bushnell, p. 155). The influence of fear, worry, mental depression, and especially of inadequate and improper food, has been demonstrated in the recent World War by a general increase in the mortality from consumption in nearly all European countries.

which have been reduced in 1921 to 18.50 for the colored and 11.64 for the white.

That the Afro-American responds promptly to improved environments is strikingly illustrated, not only by a decrease in his general death rate but also in the tuberculosis death rate from 1,102 in 1875 to 265 per 100,000, in 1921. This decline, we believe, is largely due to improved methods in general sanitation and higher standards of living, which have increased the natural power of resistance to disease.

Among the noteworthy effective measures were the following: Pure water and air, condemnation of dwellings unfit for human habitation, the erection of sanitary homes at reasonable rental, pure-food laws with special reference to milk, registration of tuberculous cases, and care and treatment in suitable hospitals, legislation and education for the prevention of contact infection, infant and child welfare work, better economic conditions, and a more plentiful and suitable supply of food.

SURVEYS AND SPECIAL INVESTIGATIONS.

Apart from the contributions mentioned in the foregoing review, Dr. Aleš Hrdlička, of the Bureau of American Ethnology, under the auspices of the Indian Office, collected in 1904, from its physicians, information as to the morbidity due to tuberculosis among the Indians of the United States (see Bulletin No. 34 of the Bureau of American Ethnology). In the summer of 1907 the Indian Office called on its physicians to collect the morbidity and mortality rates due to tuberculosis during the fiscal year 1907–8. The Indian Office and the Smithsonian Institution authorized Doctor Hrdlička to make a brief direct research into the subject in a number of selected tribes, and detailed him, with Dr. Paul B. Johnson, bacteriologist, to carry on the investigation. The results of this were presented to the Sixth International Congress on Tuberculosis in 1908, in the form of an exhibit and preliminary communication, and are found in a detailed form in Bulletin 42 of the Bureau of American Ethnology.

The data on the morbidity due to tuberculosis included 91 acceptable reports dealing with an Indian population of 107,000 individuals. These reports recorded 2,836 cases of the disease, divided as follows: Pulmonary tuberculosis, 1,038 (9 cases per 1,000 of population); tuberculosis of bones and joints, 208 (1.95 cases per 1,000 of population); glandular tuberculosis, 1,590 (15 cases per 1,000 of population).

According to Doctor Hrdlička, the detailed statistics show:

1. That the morbidity and mortality from all forms of tuberculosis among the Indians exceed by far those among the white generally, and that their average exceeds even the very high rate among the American Negroes.

2. That the disease, while most prevalent in Northern and Northwestern United States, and in certain regions in Oklahoma, presents no definite distribution according to territory and climate. Nearly all of the tribes that have long been in contact with the whites and that have advanced more or less in civilization are seriously affected. On the other hand, most of the least affected tribes have been less in contact with the whites and live not only in favorable climate but, also, to a large degree, in their native manner. Judging from the Pueblos, who are among the tribes most free from tuberculosis, the contact of the Mexicans was not as detrimental as was that of the whites from the East and North of the continent. The natives most free from tuberculosis—the Navajos—occupy an extensive and naturally healthful region, where they live under conditions more nearly aboriginal than those found in any other locality north of Mexico. The tribe, no doubt, suffers more from tuberculosis than is indicated in the reports of the Indian Office, for the size of the territory and the number of its people make it impossible as yet to obtain exact data. Still, there are indications that in this tribe the proportion of tuberculous cases is very small where contact with the whites is restricted. An exception is found among the Navajo on the Hopi Reservation, who already show infection to about the same extent as the Hopi themselves.

Many interesting data concerning the actual state of the different tribes visited will be found on pages 8 to 28 of the bulletin. They relate specifically to the Menominee in northeastern Wisconsin, the Oglala Sioux in South Dakota, the Quinaielt in northwestern Washington, the Hupa in northwestern California, and the Mojave in Arizona.

Doctor Hrdlicka, writing of the food of the Menominee Indians, observed their meals on numerous occasions and found them to be less regular than among the whites and often poor in every respect. It was only occasionally that a really well-provided table was seen, but housing conditions were found to be good.

Of the Oglala Sioux Indians (see p. 10), the report on pages 11 to 14 refers to bad housing conditions and inadequate food. In many of the dwellings it was seen that the denizens lack in both quantity and quality of food on account of their poverty. This affects the adults, especially the aged, more than the children. Numerous cases were seen where the whole meal consisted of a few crackers and black coffee. In several instances cattle which had died of disease had been consumed, both flesh and viscera. According to the resident physician, Doctor Walker, the Oglala eat not only cattle but even horses and dogs that die of disease. The people are not emaciated; in fact, many look well nourished. Yet there is no doubt that many do not receive, except on rare occasions, all the nourishment they require. This doubtless induces indolence and disease. Of the Quinaielt Indians, he writes, on page 15:

> The food consists principally of fresh, dried, salt, and smoked fish. No evidence of actual want was seen in any of the houses, but there is more or less irregularity about meals, which are not properly prepared. The housing conditions are fair, but most insanitary habits, such as uncleanliness, spitting on the floors, and consumptives living in the midst of their families and working as long as they can, prevail.

Inadequate medical care, etc., were reported.

Of the Hupa Indians, Hrdlicka reports no earth floors, except in a few of the oldest homes. In a majority of cases the houses were found both well ventilated and fairly clean. As a result of different activities there is usually but little want in the tribe, except among the aged, the sick, or the dissipated. About 30 of the old people receive biweekly limited rations from the Government; nevertheless there is no steady supply of nourishing, properly prepared and regularly served food as there is among the whites living in the same region. They still use basket bowls for soups, passing them freely to well and sick alike. These baskets are never properly cleaned and surely furnish one means of spreading tuberculosis.

Of the Mojave Indians in Arizona, Doctor Hrdlicka, on page 19, says:

> All things considered, poverty and want are more frequently witnessed in this tribe than in any of the others that were visited, with the exception of the Sioux. Their food supply is irregular; while some meals that the writer saw were tasty, nourishing, and plentiful, in many other cases the meals were insufficient for proper nourishment.

SURVEY CONDUCTED BY UNITED STATES PUBLIC HEALTH SERVICE IN 1912.

Pursuant to an act of Congress, approved August 24, 1912, providing for an investigation into the prevalence of contagious and infectious diseases among the Indians, the United States Public Health Service submitted a report, January 23, 1913.

The investigation covered not only tuberculosis, but also trachoma, smallpox, typhoid fever, and other communicable diseases. The report contains valuable data, and was published as a Senate Document, No. 1038, Sixty-second Congress, third session, in 1913 The report on the prevalence of tuberculosis will be found on pages 40 to 49.

The following are excerpts of the reports relating to tuberculosis among Indians in different States and Territories:

Arizona.—Of 5,873 Indians inspected by Fricks, 2,224 were boarding-school children with a low percentage of tuberculosis, because tuberculous children are excluded from these schools. There were found 114 cases of tuberculosis, namely, pulmonary, 52; glandular, 54; osseous, 6; other forms, 2.

The percentage of infection varied from 1.5 per cent among the White River Apache and 8.3 per cent among the Navajo to 14.6 per cent among the Walapai in northwestern Arizona. These differences are attributed to a difference in living conditions. The former live in isolated tepees built of arrowweed and the Navajo live in hogans and both tribes burn their homes with everything in them when a death occurs, while the Walapai dwell in insanitary hovels at various points along the Santa Fe Railroad.

California.—The highest percentage of tuberculosis in California, found by Billings on the Round Valley Reservation and among the Indians in the San Quentin Penitentiary, was 15 per cent. He also gathered from morbidity statistics of the agency a record of 244 cases of measles and 552 of influenza, diseases which are frequently followed by tuberculosis. The report refers to the insanitary conditions of the houses of the Indians, the lack of personal cleanliness, and of indifference and ignorance.

Colorado.—Smith found a comparatively low percentage of tuberculosis among the Southern Utes of Colorado, though the result of Von Pirquet test made on 65 school children at Ignacio, Colo., gave 81.5 per cent of positive reactions * * *. No cases of clinical tuberculosis were found among the Southern Utes inspected at Navajo Springs, Colo. In the annual report of the Indian Office for 1912 these Indians are given special mention for freedom from tuberculosis, and their sanitary condition is considered the highest recorded among the Indians in New Mexico.

Florida.—Rucker inspected 22 Seminoles in Florida and found no tuberculosis. The aloofness of this tribe made further examinations impossible, but the testimony of the whites who know them well leads to the belief that the disease is uncommon among them. He says:

> This may be accounted for by the equable climate, their life in the open air, and their abundant food supply of fish and game.

Idaho.—Lloyd found 23 cases of tuberculosis among 461 Indians inspected by him, a case incidence of 49.8 per 1,000. The highest percentage was found on the Coeur d'Alene Reservation, with 6.92 per cent. An examination of 81 Nez Perce Indians at Fort Lapwai revealed no tuberculosis. The report refers in favorable terms to the Fort Lapwai Sanitarium School for Tuberculosis.

Iowa.—White found 15 per cent of the Sac and Fox Indians of Iowa to be tuberculous and attributes this high incidence to general insanitary conditions of the dwelling places and their habits, especially the use of the "mescal button."

Minnesota.—Clark inspected 646, and Preble 187, Indian boarding-school children in Minnesota and found a total of 27 cases, viz, 10 pulmonary, 16 glandular, and 1 osseous; percentage of 3.24. The high percentage of tuberculosis, 14.8, at the Vermillion Lake School at Tower, Minn., was made up of glandular cases. The percentage at the Cass Lake Boarding School was 4.25, and at the Benedict Mission School 3.19. Among 2,709 reservation Indians, exclusive of children in Indian boarding schools, 145 cases of tuberculosis, or 5.35 per cent, were found; of the 145 cases, 90 were pulmonary, 34 glandular, 19 osseous, and 2 cutaneous. The percentage on Leech Lake Reservation was 4.8; Red Lake, 5.5; White Earth, 4.6; at Pine Point, 9.52. The highest percentage, namely, 23.07, was encountered on a small nonreservation settlement at Pelican Point, near Orr, Minn. Of this place he writes:

> The Indian houses are disgustingly filthy, and the Indians themselves very poor and much addicted to the use of intoxicants.

Michigan.—Clark inspected 333 children in Indian boarding schools and found 8 cases (2.4 per cent) of tuberculosis, 6 pulmonary and 2 glandular.

Of 310 reservation Indians, exclusive of school children, 7, or 2.25 per cent, were found to be tuberculous—6 pulmonary and 1 osseous. Only 1.18 per cent of tuberculosis was found among the Indians of the Mackinac Agency. The disease is rare among the white population of this section, and the homes of these Indians compare favorably with those of the white people in like circumstances. At Bay Mills the highest percentage, 3.54, was found, and the sanitary condition of their homes is only fair.

Kansas, Nebraska, Oklahoma.—By reason of the location of large nonreservation boarding schools, and the consequent examination of a relatively larger proportion of school children than reservation Indians in these States, the reported percentage of tuberculosis found is low. Guthrie, however, in an examination of 305 Cheyenne and Arapaho in Oklahoma, found 22 cases, or 7.21 per cent, and among the Ponca and Seminole 5.30 and 4.31 per cent, respectively.

Montana.—White found among 2,042 Indians in this State 247 cases, namely, pulmonary 50, glandular 183, osseous 6; a percentage of 12.14. The highest percentage, 19, was found among the Flatheads, and the lowest, 5.3, among the Northern Cheyenne. The Piegan of Blackfeet Reservation showed 10.34 per cent; the Sioux of Fort Peck, 13.57; the Gros Ventre, Assiniboin, Arapaho, and Sioux of Fort Belknap, 14.10 per cent; and the Crow, 15.38 per cent. White attributes the greater prevalence of tuberculosis among the Indians of this State to filthy habits, insanitary homes, and the use of intoxicants.

Nevada.—Billings inspected 522 reservation Indians in Nevada, and found 62 cases of tuberculosis, or 21.43 per cent; pulmonary 38, glandular 21, osseous 3, and 1 cutaneous. A percentage of 32.07 of tuberculosis was found among the Paiute of Pyramid Lake; 22.1 per cent on the Western Shoshone Reservation; 18 per cent at Fort McDermitt, Nev.; and 18.4 per cent in four Indian schools. He attributes this undue prevalence to Indian customs and insanitary dwellings, which favor the spread of the disease.

New York.—Leake reports a tuberculosis percentage of 1.27 among the 865 Indians in the State of New York examined by him, and is inclined to believe that there has been a decrease among the Iroquois Indians. The sanitary conditions of their homes is comparable to that of the whites in like circumstances, and the nutrition of these Indians is good.

New Mexico.—Smith found the highest percentage of tuberculosis among the Apache Indians on the Jicarilla and Mescalero Reservations, viz, 9.45 per cent and 7.21 per cent, respectively. In commenting on the situation, he says:

> The Jicarilla Reservation Indians who dwell in tepees, present a higher percentage than is found on the Mescalero Reservation, where the majority of the Indians are domiciled in houses, showing that careless habits, poverty, lack of proper food, lack of clean lives, and bad social customs, after all, are the great determining factors in the spread of the disease.
>
> The lowest percentage of tuberculosis was found among the Navajo and Zuni. The former are prosperous and well fed, the construction of their dwellings—hogans—permits ventilation. The Zuni are thrifty and industrious. The interiors of their dwellings are often whitewashed and their construction facilitates ventilation. Moreover, the floors of these dwellings are often renewed by spreading on a thin layer of moist material which subsequently hardens. Thrift, a good food supply, and improved sanitary conditions of the houses are the main cause of the low comparative percentage of tuberculosis among these people.

Smith employed the Von Pirquet test for the determination of tribal infection to tuberculosis, and his findings will be found on page 45 of the report, and are summarized as follows:

> These very valuable observations support the contention that the Indian is not peculiarly susceptible per se to tuberculosis, but that the great prevalence of this disease among them is due largely to their social habits and insanitary surroundings.

North Carolina.—Fricks examined 317 Cherokee in this State and found six cases of tuberculosis, 4 pulmonary and 2 glandular, a percentage of 1.89. He says the Cherokee numbering 2,115, with 41 per cent full blood and 59 per cent mixed, * * * live just as the poorer white mountaineers of that section.

North and South Dakota.—In all 9,568 Indians were examined in these two States by Schereschewsky and Preble, and 361 cases of tuberculosis were found. Of 5,813 reservation Indians, exclusive of school children, 296 cases, or 5.09 per cent, were found to be tuberculous, viz, 162 pulmonary, 108 glandular, 19 osseous, and 7 cases of all other forms. Of 3,103 Indian boarding-school children in these two States, 52 cases of tuberculosis, or 1.67 per cent, were found, viz, 18 pulmonary, 32 glandular, 5 osseous, and 1 of other forms. Of 652 Indians, day-school pupils, 9 cases of tuberculosis, or 1.38 per cent were found, viz, 4 pulmonary and 5 glandular. The highest percentage, 5.89, was found on the Fort Berthold Reservation, and the lowest, 0.92 per cent, on the Turtle Mountain Reservation. According to Schereschewsky, tuberculosis at the agencies visited by him causes 22.32 per cent of all the deaths.

Oregon.—Billings inspected 316 Indian children in the Salem nonreservation boarding school, and found 11 cases of pulmonary tuberculosis, 29 glandular and 3 osseous, a total of 43, or 13.6 per cent. Among 788 reservation Indians examined there were found 61 pulmonary, 59 glandular, 8 osseous, and 3 of other forms of tuberculosis, a total of 131, or 16.62 per cent.

The highest percentage, 24.56, was found in the various tribes of the Siletz Reservation. Percentages for other reservations are: Klamath Lake, 20.27; Umatilla, 20.66; and Warm Spring, 23.75.

Pennsylvania.—At the Carlisle Indian Boarding School, receiving pupils from nearly every Indian tribe, 552 students were examined, and 26 cases of tuberculosis, or 4.7 per cent, were discovered, viz, pulmonary 8, glandular 17, and osseous 1.

Utah.—Among the Uintah and Ouray Indians of Utah, 182 were inspected, and 8 cases of tuberculosis found, viz, 4 pulmonary, 3 glandular, and 1 osseous—a percentage of 4.39.

Virginia.—Cumming inspected 43 Indian students at the Hampton Normal Institute and found 3 cases of tuberculosis, 2 pulmonary and 1 osseous—a percentage of 6.97.

Washington.—Lloyd inspected 1,347 Indians, including children, in this State and found 73 cases of tuberculosis, viz, 48 pulmonary, 21 glandular, and 4 osseous—a percentage of 5.41. * * * Among the Dwamish and allied tribes, exclusive of the Cushman and Tulalip Schools, the percentage on the reservations were as follows: Lummi, 11.95; Suquamish, 13.51; Swinomish, 10.20; Colville and Spokane Reservations, 8.26. Lloyd considers tuberculosis a serious problem among the Indians in Washington, and specific mention is made of overcrowding and poorly ventilated houses as the chief predisposing factors to the disease.

Wisconsin.—Among 1,703 reservation Indians, exclusive of school children, 52 cases of tuberculosis, or 3.05 per cent, were found. The highest percentage, 6.48, being found on the Lac Du Flambeau Reservation. The majority of these Indians dwell in very insanitary homes, and their customs and habits favor the spread of the disease. The following percentages of tuberculosis were also noted: Chippewa of Wisconsin—Lac Courte Oreille, 3.72; La Pointe, 4.73; Red Cliff, 2.89.

The Menominee showed by percentage 1.35 and the Oneida 2.70. The sanitary condition of the majority of the homes visited was good. The Oneida cultivate a considerable part of their land and are self-supporting.

Among the 1,296 Indian boarding-school pupils 37 cases of tuberculosis, or 2.98 per cent, were found, of which 24 were pulmonary, 9 glandular, 3 osseous, and 1 cutaneous.

At the Lutheran mission, Stockbridge Reservation, 8.88 per cent of tuberculosis was found. In the Government school at Keshena, Menominee Reservation, the percentage was 7.69. This percentage includes the children of this school transferred to the agency hospital at that place.

The presence of tuberculosis in these boarding schools, however, is adventitious and due to reluctance on the part of the school authorities to return children, in the early stage of this disease, to insanitary homes and to a poor food supply. The tuberculosis case

incidence among the Indians of Wisconsin, inclusive of school children, according to data collected in this investigation, is 29.6 per 1,000.

Wyoming.—Among the Arapaho and Shoshoni, of the Shoshone Reservation in Wyoming, 392 Indians were examined, and 13 cases, or 3.31 per cent, of tuberculosis were found.

INSANITARY CONDITIONS AMONG THE INDIANS AND THEIR RELATION UPON THE PREVALENCE OF INFECTIOUS AND CONTAGIOUS DISEASE.

Under this heading the report covers climatic influences, dust, sunlight, cold weather, housing conditions, overcrowding, personal and social habits and customs, flies, diet, etc. Referring to housing conditions, the report on page 61 states:

> According to figures furnished by the Indian Office, there are 17,188 Indian families living in permanent houses with floors, 9,201 families in houses with dirt floors, and 9,582 families living in tents, tepees, etc.
>
> The typical Indian house of the North and Northwest is usually a small one-story frame or log structure, with a common living room in which the family does its cooking, receives visitors, and sleeps. In the case of the log cabins, the chinks are puddled with clay and earth, and manure, is frequently banked around the houses in winter to exclude the cold. The roof in log cabins is usually made of sod laid upon poles. The floor too often consists of dirt, although, from the figures above quoted, it will be seen that nearly one-half the families live in floored houses.
>
> The windows are generally small, and, in log houses, placed at either end of the living room. This disposition will favor thorough ventilation were the windows kept open, but they are frequently nailed shut.
>
> On many of the Indian reservations, a number of well-constructed houses exist, put up, under Government supervision, with funds derived by Indians from sale of inherited lands, etc. And on the New York reservations the home of the Indian compares favorably with white rural dwellings. In spite of the more commodious quarters, the tendency of the Indian family to huddle together is manifest in these houses, the family occupying but one room and leaving the rest of the house uninhabited. Indian habitations peculiar to the Southwest are the "hogans" used by the Navajos, the grass huts of the Apaches, and the houses used by the Hopis and the Pueblo Indians.

Overcrowding.—Owing to the high birth rate among the Indians, the average family consists of 4 or 5 individuals. It is no unusual sight to see 8 or 10 individuals living in one small dwelling, or for Indian families to huddle together, even in commodious quarters. The following graphic description of Preble's gives an excellent idea of conditions too frequently met with on Indian reservations and the opportunities for the transfer of infection which overcrowding affords:

> In one such house, a well-built two-room frame dwelling, about six months old, 8 individuals were found living and sleeping in one small room, about 12 by 14 feet. Three of these people were between 8 months and 3 years of age. An apology for a bed occupied one side of the room and on it sat a young mother, suffering from advanced tuberculosis, holding a 3-year old girl. In the center of this room was a worn-out cooking stove, giving off great quantities of heat and foul odors. The air in the room was stifling. On the other side of the room, two women, about 30 years of age, were sitting on a number of extremely filthy rags and hides, both nearly blind as the result of acute trachoma. One was nursing an 8-months old baby, and when an examination of their eyes was attempted, this mother wiped the discharges from her own eyes with her fingers and then attempted to assist in opening her baby's eyes for examination. * * *
>
> The Indians sleep either on the floor or in beds. Bed linen is, of course, conspicuous by its absence among the primitive Indians, and the bedding consists of a miscellaneous collection of quilts, blankets, and skins, often very filthy. * * *
>
> Towels are but little in use, any convenient cloth serving instead, and where present they are used in common by all the members of the family. But one hand basin at most is provided for washing purposes and, like the towel, is used indiscriminately.

> In addition to want of cleanliness, the Indian is very careless in other personal habits. Secretions from the nose and eyes are commonly removed with the fingers, which are not subsequently cleansed. It was a frequent experience, reported by the officers engaged in this investigation, to see a mother afflicted with trachoma removing secretions from her eyes with her fingers and then performing a similar function for her child. If a handkerchief was used for the purpose, it was usually in a filthy condition and used in common with the mother and the child.
>
> The Indians are very careless about expectorating freely on the dirt floors and, at most, covering the sputum with a pinch of dirt. It is inevitable that the dirt floor of huts inhabited by tuberculous Indians must in time become heavily infected with the tubercle bacillus.

PREVALENCE OF TUBERCULOSIS.

> Although no accurate data could be obtained relative to the length of time tuberculosis has existed among the Indians visited by the officers engaged in this investigation, an increasing prevalence of this disease among them is shown by the records of the Indian Office, and the fact has been emphasized in various reports submitted by that office from time to time. (From p. 75 of the Report of the U. S. Public Health Service.)
>
> The records of recent years are more carefully kept, and, taken in connection with a better understanding of tuberculosis and a more accurate recognition of tuberculosis cases, furnish fairly reliable data for the estimation of the relative prevalence of tuberculosis among representatives of the three main races of the United States. The death rate from tuberculosis in these three races has been stated to be as follows: White, 1.73 per 1,000; Negro, 4.85 per 1,000; Indians, 5.06 per 1,000. Based on this estimate and allowing 1 death among every 7 persons affected, the case incidence of tuberculosis would therefore be 12.1, 33.9, and 35.4 per 1,000, respectively. (From p. 40 of the Report of the U. S. Public Health Service.)

Special Surveys Made by State Associations.

TUBERCULOSIS AMONG THE WINNEBAGO INDIANS IN NEBRASKA.

As already stated on page 1, a special study with reference to tuberculosis was made by Dr. Margaret W. Koenig on the Winnebago Reservation in 1919, from which the following are extracts: The records show that the tribe numbered 1,057 in 1910 and 1,078 in 1919. The number of births and deaths during this period, 332 and 315, respectively, indicates a general tendency toward tribal decay. The average death rate was 36.2 per 1,000, and the birth rate 34.4 per 1,000. The record for the fiscal year 1915–16 shows 15 out of 40 deaths, or 37.5 per cent, to be under 3 years of age. Again, in 1917–18, 20 deaths out of 51, or 39.2 per cent, were under 3 years. The number of stillbirths have also increased within the past five years.

During the decade from 1909–10 the records disclose 237 cases of tuberculosis with 127 deaths, or a mortality rate of 11.7 per 1,000. This is much higher than the rate cited by Hrdlička (6.6 in 1907–8), or the Government rate for seven years of 6.8 per 1,000. Of the 44 Winnebago deaths reported in 1919, 13.6 per cent were from tuberculosis; in 1915, 48.4 per cent, and in 1913, 27 per cent.

The report also deals with morbidity rates, classification of cases; and the predisposing causes, such as ignorance of hygiene, lack of house sanitation, social customs, the use of intoxicants and of mescal or peyote, which is considered more insidious and harmful than alcohol, because of its tendency to lower the general power of resistance, and predisposes also to insanity. Reference is likewise made to the undue prevalence of venereal disease and to the difficulties Government and volunteer field workers encounter in their

child-welfare work. Doctor Koenig in commenting on the conditions, in part, says:

The children, carefully guarded by them during the school year, leave at the end of the term to spend the summer months with the parents, only to return in the fall in an undernourished, anemic, and nonresistant physical condition. Difficulty with the adults, too, is experienced, their inherent restlessness rebelling at any long-continued restraint, especially noticeable in the hospital cases.

In determining the predisposing cause of tuberculosis among the Winnebago, no single factor can be isolated. The Indians are creatures of environment, and, true to the instincts of their nature, they like to live the free, roaming, profitless life of the Indian.

In emerging from the early tribal nomadic life to that of civilization they have been placed in an environment new and unfamiliar, without protection being thrown about them. * * * The transition from the old, free, active, vigorous outdoor life, full of interest and excitement, to the indoor, shut-in, modern life with food that they do not know how to prepare and to which they are unaccustomed, must be considered. In the old days the Indian dwelt in tepees or bark lodges with an opening at the top and the fire in the center, making ideal ventilation. At the present day houses have been substituted for primitive lodges without the Indian having been taught how to live in them. As the houses can not be moved as were the tepees, and nature not having the opportunity to clean up the insanitary conditions as they arise and multiply, the occupants continue to live in the midst of the filth with all their native ignorance and carelessness. In addition to the overcrowded, ill-ventilated, and insanitary homes are the unclean personal habits, the periodical feasts and famine, and the living about, with its consequent parental irresponsibility and neglected childhood.

Doctor Koenig recommends the introduction of activities tending toward better health and better morals and through this protection, which is really the inherent right of the Indian, to protect also the white population which comes directly or indirectly in contact with him. The health situation is no longer an Indian problem but a community problem—a public-health responsibility.

THE WISCONSIN ANTITUBERCULOSIS CLINIC AMONG THE ONEIDA INDIANS.

In the summer of 1921 the Wisconsin Antituberculosis State Association, in cooperation with the Outagamie County Chapter of the Red Cross, conducted a discovery clinic for tuberculosis on the Oneida Reservation.

It is estimated that there are about 1,500 persons, Indians and whites, on the reservation. Of these, 251, or nearly 17 per cent, were examined.

Mrs. Louise F. Brand writes, under date of May 17, 1922, that of the 251 cases examined, 42, or about 16 per cent, were found to be tuberculous, classified as follows: Presumptive, 11; suspicious, 5; healed lesions, 11; glandular, 10; spine, 1; mastoid, 1; quiescent, 2; tuberculous pleurisy, 1. Eleven of these cases were recommended for sanatorium treatment. Mrs. Brand writes:

We did not find as much tuberculosis at the reservation clinic as we expected from what we know, in a general way, of conditions on other reservations in the State, and also from what we have discovered in our clinics for white people. This may have been due to the comparatively small number of people between the ages of 20 and 50 examined, 155 of the total of 251 being under 20, and 23 over 50. The percentage of tuberculosis ran a little over 16 per cent, whereas the general average since the beginning of our clinic work has been over 18 per cent. Up to May 1, 1922, we had held 279 clinics in 99 different communities, examined 13,548 persons, and found 279 cases of tuberculosis.

The following table presents the details of the Oneida clinic July 18, 19, 20, 1921:

TABLE NO. I.

Examinations	251
Tuberculosis cases	42

TUBERCULOSIS.

Presumptive	11	Spine	1
Suspicious	5	Mastoid	1
Healed lesions	11	Quiescent	2
Glands	10	Tuberculous pleurisy	1

OTHER DIAGNOSES.

Post influenza	3	Enlarged glands	16
Post pneumonia	1	Anæmia	1
Asthma	2	Eyes	5
Bronchitis	2	Streptococcus infection	1
Heart	15	Arthritis	3
Simple thyroid	9	Gastritis	1
Toxic thyroid	2	Empyema	2
Tonsils	58	Skin disease	6
Adenoids	8	Nose and throat	3
Teeth	47	Chronic appendicitis	1
Spine	1	Referred to physicians	135
Underweight (10 per cent)	19	Contact	34
Apparently normal	77	Healed pleurisy	2
Thickened pleura	5		

TUBERCULOUS INDIANS.

Male	17
Female	19
Total	36

NONTUBERCULOUS INDIANS.

Male	84
Female	95
Total	179

TUBERCULOUS WHITES.

Male	3
Female	3
Total	6

NONTUBERCULOUS WHITES.

Male	18
Female	12
Total	30

	All cases.		Tuberculous.		Nontuberculous (number).
	Number.	Per cent of total.	Number.	Per cent.	
All cases	251	.....	42	.....	209
Male	104	41.4	20	47.6	84
Female	147	58.6	22	52.4	125
Contacts	34	13.5	8	19.0	26
Under 1 year	1	.4	.....	.....	1
1 to 4 years	21	8.4	1	2.4	20
5 to 9 years	50	19.9	7	16.7	43
10 to 19 years	83	33.1	11	26.2	72
20 to 29 years	23	9.2	8	10.0	15
30 to 39 years	23	9.2	2	4.7	21
40 to 49 years	27	10.7	7	16.7	20
50 to 59 years	13	5.1	4	9.5	9
60 to 69 years	8	3.2	1	2.4	7
70 years	2	.8	1	2.4	1

The following is a copy of a letter mailed by the Wisconsin Antituberculosis Association to interested physicians after the close of the clinic in July, 1921:

Twenty-six per cent, 66 of the 251 men, women, and children examined at the free chest clinic, recently held on the Oneida Reservation, were found to be in need of medical attention. In each instance the person was urged to consult his family physician, taking his clinic record chart with him. Only 77 of the entire number examined were found to be practically normal.

Among the 66 persons referred to physicians of their own choice are 11 for whom sanatorium care was advised by the clinic examiners. We feel sure that you will give us your hearty cooperation in urging the importance and value of sanatorium treatment upon any of these tuberculous patients who consult you.

The fact that the value of the clinic is not confined to the discovery of the tuberculosis is indicated by the clinic findings, showing that among the persons referred to physicians for further advice and care are 47 having decayed teeth; 58 with diseased tonsils; 8 having enlarged adenoids; 15 with heart trouble; 9 having simple thyroid; 2 having toxic thyroid; 16 having enlarged glands; 3 having nose and throat trouble, etc. Once more we wish to express our hearty appreciation of the cordial interest and helpful spirit shown by the medical men both before and during the clinic.

In answer to inquiries regarding housing and living conditions, etc., Mrs. Brand referred Doctor Kober's letter to Miss Bertha M. Schultz, county nurse, who kindly furnished the following information under date of May 19, 1922:

The average Indian's house consists of three or four rooms, usually two rooms downstairs and one large room upstairs. There are anywhere from 3 to 12 people living in these small houses.

During the summer months they all practically live outdoors, and in many instances do their cooking out of doors. Houses are not screened, and very few have basements. There is no opportunity for privacy for the different sexes in the average home, since men, women, and children all sleep in one room.

The homes are fairly clean. Very little furniture—a few beds, four or six ordinary chairs, a table and a kitchen stove, and occasionally a heater, constitutes the furnishings found in the average home. Their clothing is clean, and it is unusual to find a dirty Indian child in school. Their standard of living is better in the summer. Many of the Indians leave the reservation to work on farms, with road construction crews, and in paper mills in the near-by towns of De Pere, Green Bay, Appleton, and Kaukauna. When they are earning they dress and eat well. During the winter months there is a great deal of suffering and hardship. Homes are very crowded and cold. Food is scarce and of poor quality, consisting mostly of beans, a little pork, homemade hominy, bread, and coffee. Very little milk is used. Not more than one-third of these Indians have cows, some of the others buy milk from the white settlers on the reservation, but many children report in school that they never have any milk. Many of the children do not attend school because of lack of clothing. However, last fall we made a real effort to send to the Government school the children of the poorest families, and I believe most of the children were at some school this past school year.

KLAMATH INDIAN SURVEY.

Condensed from a report by L. Grace Holmes, R. N. in Health First, published monthly by the Oregon Tuberculosis Association, March, 1922.]

The Oregon Tuberculosis Association undertook this survey in October, 1921, loaning the director of its bureau of surveys and clinics for the work, and the agency furnished entertainment and transportation at the reservation, which covers 1,000,000 acres in Klamath County, Oreg., just east of the Cascade Mountains. About 1,100 to 1,200 Indians of the Klamath, Modoc, Piute, and Pitt River Tribes, almost a quarter of all the Indians in the State of Oregon, are located on this reservation. The total value of this tribal property, including a great deal of timberland, is estimated at $26,000,000, and with less than 1,200 Indians and every Indian who was born before 1910 owning his 160-acre allotment, it is easy to figure that potentially the Klamath Indians are a wealthy group of people, but practically they are not. A good deal more of the land needs to be irrigated to make it even good pasture land. Capital is needed to finance irrigation and the Indians have not the capital. Few of them have capital enough to make a good start at stock raising.

Diversified farming on any considerable scale is impossible on account of frost in all months of the year (altitude about 4,200 feet). A good road project is as greatly needed as irrigation, and until these two needs are met the Klamath Indians will be struggling against real odds. Ninety-one Indian houses, representing 119 families, were visited, some of which presented a neglected appearance. But there were not many of the latter, and two things stood out rather prominently all over the reservation; (1) The number of floors that showed evidence of having been scrubbed with a brush rather than washed with a mop, and (2) the unusual cleanness of the washing that is done.

Of inimical influences Miss Holmes writes as follows:

"Whisky and gambling make for uncertain income, periods of reckless spending, and again of bitter poverty, and for the spread of tuberculosis and trachoma by contact, and for broken sleep for the children, who are dragged around from game to game."

The State Board of Health of Oregon received from the agency reports of 27 deaths from tuberculosis and not one report of a living case during the last five years. The agency records show that there were 55 deaths from tuberculosis during the same period or 10.5 per year in a total population of a little over 1,100, practically one death every year out of each 100 population. * * * However, we found only about five living cases to each annual death, and we came away feeling reasonably sure that no one had escaped us who was showing definite symptoms of tuberculosis.

The percentage of tuberculosis disclosed by the survey of the United States Public Health Service among the Klamath Indians in 1912 was 20.27. The report contains many interesting data and recommendations; the latter are recapitulated on page 12 as follows: (1) A general hospital; (2) a more stable type of medical service; (3) a better preparation for public health work of physicians and field matrons; (4) a strong child welfare campaign; (5) traveling and weekly clinics; and (6) an eastern Oregon tuberculosis sanatorium that shall admit Indians.

ANSWERS TO THE QUESTIONNAIRE.

As already indicated on page 3, the committee prepared a questionnaire, which was mailed by the National Tuberculosis Association, to affiliated State associations and to State boards of health in whose jurisdictions there was an Indian population. The Bureau of Indian Affairs also transmitted the questionnaire to physicians and superintendents of the Indian Service, and 178 answers were returned by Federal agencies and 39 from State agencies. The answers contain information of interest and importance and the results of the analysis are herewith presented.

Arizona Tuberculosis Association (R. P. Cuvellin, 300 East Adams Street, Phoenix).

1. The system of reporting infectious and contagious diseases is so ineffective in Arizona that true reports can not be compiled.

2. Astoundingly bad housing conditions, lack of instruction in sanitation, congested living conditions—that is, the number of Indians allowed to occupy one small hut with no ventilation is too great, and the nonremoval of tuberculous Indians when the disease is first recognized.

3. None, aside from having a reservation doctor.

4. A well-paid supervising physician for a number of close reservations under whom could be employed physicians to carry out and enforce a program of prevention. Some funds for this purpose would be required from Federal sources for aiding in reconstruction of huts, etc.

California State Board of Health Bureau of Tuberculosis (Mrs. E. L. M. Tate-Thompson, Director, Sacramento, Calif.).

1. We have no statistics that are really accurate regarding the spread of tuberculosis among the Indians * * *. From the work done by our nurses we find more and more that the younger Indians, particularly those who have attended the Indian schools, seem to acquire tuberculosis after they leave home to attend the school, and we are also having more demands for beds from Indians who wish hospital care than we have had previously.

2. Our own observation is that no group of people, Indians or white, could escape infection of any kind when housed under the same conditions that the Indians are

obliged to live under. This, coupled with their susceptibility, low standards of living, and great poverty are important predisposing causes * * *. Nearly all of the land that was given to the Indians that was good and could have been used for agricultural purposes has been taken away from them by the white people. The land allotted to them on the reservations has so little water that it is not unusual for drinking water to be carried a half mile. We find that the Indian in all of the agricultural sections of the State is industrious whenever there is opportunity for work * * *.

3. When Mr. Sells was Commissioner of Indian Affairs he made an appropriation to the State association of $1,500 for the salary of a nurse. The association paid the expense of the nurse and she worked on the reservations for one year, * * * and $500 was also appropriated by the District Federation of Women's Clubs, most of which was used for emergency medical relief work. We have encouraged higher standards of living, physical examination of children, and segregation of active cases of tuberculosis, by sending them to the Carson City Indian Sanatorium or to our county institutions. The pressure is so great from the white patients that the Indians have not had much chance so far. * * * Have sent out a great deal of educational literature into the Indian sections, and the State association three years ago established, in one of the large counties, where a band of 800 Indians were working, picking fruit, a dental and tuberculosis dispensary.

The Indians paid for the dental work, and we kept a nurse on, so that Indians with tuberculosis and trachoma were kept from working, and I should say the effort we put into it was well worth while. Last summer I interested the Commissioner of Indian Affairs into buying the traveling motor clinic of the California Tuberculosis Association * * *. It was a very heavy truck (weight about 7,200 pounds), and when it began making the climb into the high Sierras, over unpaved mountain roads that were badly cut, we found the turns were so short, and the clinic so long and heavy, that it was not safe to attempt it. Undoubtedly we could have examined a good many patients during the summer had we been able to get into the isolated communities. Instead a couple of tents were erected and one was used as a dental clinic and the other for examining the patients. A great many Indians came in to have extractions. There were a number of sick children, but only two cases of tuberculosis.

Replying to question No. 4, I believe that the solution to the whole situation out here would be for the Government to make the appropriation directly to the State of California. I understand now that about $15,000,000 a year is appropriated for Indians, and if we had even $2,000,000 out here to spend over a period of years, where it could be spent under the supervision of a relief commission, where better schools could be built, better teachers provided, one good general hospital located near enough to the larger reservations so that the Indians could secure care and treatment when it is necessary, increasing the allowance for the older Indians and helping the younger ones to get on their feet, I believe much of the misery that now exists might be alleviated, but as long as this is spent from Washington there is little hope that any attempt at a constructive program will be made or of the kind of cooperation that is necessary to carry out such a program will be met by the agencies in this State.

Colorado Tuberculosis Association (Miss Garnet L. Pelton, Executive Secretary, Denver, Colo.).

I regret to state that there are no statistics in this office in regard to tuberculosis among the Indians of our reservation in the southwestern part of the State. My own tenure in this association has been barely a year, and our State is so large that we have not been able, with our small staff, to cover it fully within that period. Although we are eager to visit this reservation, we have had to postpone such a visit in order to attend to more urgent work. I shall be glad to send you a report as soon as we are able to make one.

Colorado State Board of Health (R. L. Drinkwater, M. D., Denver, Colo.).

Regarding questionnaire on tuberculosis among the Indians, would state the Indians in the State of Colorado are under the Department of the Interior, Bureau of Indian Affairs, and do not make any reports to this board.

Florida (R. H. Hixon, Jacksonville, Fla.).

1. No statistics. 2. Transition from state of primitive and outdoor livelihood to indoor occupation, at least during the school period. In Florida the encroachments of civilization have driven the Indian (Seminole) into the Everglades, where malaria saps his vitality and leaves him too fatigued to live the sanitary life he should * * *. The Seminole is so nearly impossible of approach, I do not know what could be made effective.

Idaho Antituberculosis Association (Mrs. Catherine R. Athey, Secretary, Boise City; Dr. E. E. Fry, Bonners Ferry, Boundary County, Idaho.)

Forwards a report from Dr. E. E. Fry, who states that he has no statistics to determine whether there has been an increase or decrease among the Kootenai Indians, but believes there is a slight decrease. The vital statistics of 22 Kootenai Indian mothers showed that there were 133 births and 99 deaths (period not given); of the 99 deaths, 31 were from tuberculosis. Out of 12 deaths from July, 1918, to April, 1922, there were 3 deaths from tuberculosis; no deaths from this disease since 1919. Doctor Fry's answer to question 2 is, "Overcrowding in small 'shacks' and unclean houses." He is not aware of any methods adopted by Federal or State agencies to diminish the spread of the disease. Recommends the building of a sufficient number of cottages to prevent overcrowding, and a good water supply to encourage cleanliness. He says: "To carry water, as they have to do, a distance of a quarter of a mile, certainly does not encourage them to maintain cleanliness."

Mrs. Athey reports a sanatorium for Indians at Lapwai, with 130 beds, which also serves the Dakotas, Montana, Oregon, Washington, Idaho, and Alaska Indians. Feels that conditions on reservation are very bad and that the Indians are a source of infection to the whites. Will welcome a definite plan of cooperation.

Iowa Tuberculosis Association (Anna M. Drake, Director of Public Health Nurses, Des Moines, Iowa).

Referred the questionnaire to Dr. Jacob Breid, superintendent of the Sac and Fox sanatorium at Toledo, who refers to the official statistics (Appendix B) and mentions poor food and housing conditions as important predisposing causes and recommends a thorough, practical educational campaign.

Kansas State Tuberculosis Association (Chas. H. Lerrigo, M. D., Executive Secretary, Topeka, Kans.).

Referred questionnaire to Mr. A. R. Snyder, superintendent Potawatomi Indian Agency, Mayetta, Kans., March 1, 1922, who reports 14 deaths in a population of 1,500 Indians in 1921, only 2 of these deaths being caused by tuberculosis, and adds:

"There has been no special campaign against tuberculosis among the Kansas tribes since I came here in 1914; 75 per cent of our children of school age attend the public schools with the white children, and they have had the benefit of the public-school instruction in sanitation, cleanliness etc., * * *. I have visited all of the homes of the Kansas Indian, and a special effort is continually being made to have them keep their homes clean, sleep with their windows up, etc. I believe they observe these matters as generally as the rural white folks."

Michigan Department of Health, Lansing, Mich. (W. J. V. Deacon, M. D., Director of Bureau of Vital Statistics).

No data for lack of statistics as to the number of Indian population and their distribution in the State.

Nebraska Tuberculosis Association (Mrs. K. R. J. Edholm, Executive Secretary, Omaha, Nebr.).

1. Lack of statistics made survey of the Winnebago Indians necessary. 2. Survey answers question 2. 3. None by Federal and State authorities that we know of. Our association has fostered two baby welfare conferences; also have a French Indian woman in training for work among her people. 4. Everything must be done for the Indian which is done for the white man and then a little more.

Nevada Public Health Association (M. G. Davis, Reno, Nev.).

1. No statistics. 2. Improper housing conditions; ignorance of infectiousness of disease; prefer their own medicine man. Federal authorities have a hospital for tuberculosis patients, but it is hard to persuade the Indians to accept treatment. Survey find all tuberculous Indians, separate them from their families, and educate the young Indians as to the danger of tuberculosis.

New Mexico, Public Health Association (Bertha Benson, Albuquerque, N. Mex.).

Association is and has been for some time inactive.

State Department of Health, New Mexico. (G. F. Luckett, M. D., Santa Fe).

1. No statistics. 2. Exposure to infection not before experienced. Resistant race has not been bred as yet. Now undergoing process of weeding out the nonresistant strains. 3. Indians in State almost entirely within reservations. 4. Only possible remedial action lies with Federal authorities in caring for children to tide over the early and almost inevitable infection. This may be done in the agency school.

New York State Department of Health (T. W. McSorley, M. D., Director Division of Tuberculosis, Albany, N. Y.).

1. Surveys on the Cattaraugus, Tonawanda, and St. Regis Reservations, made in 1919–1922, show a marked increase in the number of known cases.

2. Bad housing conditions, contact infection, irregular meal hours, improper and insufficient food, and hardships of Indian life.

3. Dr. A. D. Lake has been employed by the Federal Government for 39 years to give Indians medical care on the Cattaraugus Reservation. Doctor Gabbey renders medical aid on the Tonawanda Reservation, and is paid by the State Board of Charities out of the poor and indigent Indian fund. Doctor McCartney occasionally visits St. Regis Indians, at the expense of the Franklin County Board of Supervisors. Onondago County Board of Supervisors provides for some medical attention and the physician visits the reservation once a week. In August, 1919, the State department of health held a tuberculosis clinic on the Tonawanda Reservation, in the council house. A successful health meeting was held the evening before, more than 250 Indians present, insuring an excellent attendance at the clinic, when five physicians, including Doctor Bray, of Raybrook, examined the many cases presented there. After the surveys revealed the need for health work on the reservations, the State department of health secured appropriations for the services of four nurses on the five reservations * * *. Many cases were brought in contact with the proper relief agencies and county sanatoria as a result of the health work organized. It was a source of deep regret among the Indians that the services of two of the nurses were discontinued on July 1, 1921, due to lack of funds to carry on the work. Since July 1, 1921, nurses are only on the St. Regis and Onondaga Reservations.

4. The Indian reservations present a field for a definite constructive program for health work in which most spectacular results could be secured were adequate funds available to undertake and prosecute the work. Diagnostic clinics are gravely needed. Most thorough canvass and visits to all the Indians' houses in order to interest each and every case to attend the clinic.

Home and School Nursing Service.—Home nursing classes organized in which each Indian home has a representative, would serve a twofold purpose of teaching how to care for the sick and to control communicable diseases. Food value and the preparation of it should be taught in a simple way. A model health center on the reservation would prove valuable and minor surgical operations and remedial treatment could be given there. It would serve as a child welfare station, doctor's office, etc.

Alabama, N. Y. (Dr. G. A. Neal).

Dr. G. A. Neal, of Alabama, N. Y., answers questions as follows: No. 1. No statistics. 2. Poor sanitation. 3. Practically none until last year or two. 4. Sanitary education.

Onondaga County Tuberculosis Association (Miss Minnie E. Freeman, Syracuse, N. Y.).

Answer to question No. 1: We are quite sure there has been a diminution in the number of cases in the last two years. 2. Improper housing and general lack of knowledge of the danger from careless expectoration and little attention to personal hygiene. 3. Refers to the work of the State board of health detailed above, and says: "The Visiting Nurse Association of Syracuse gives school lunches during the winter. Onondaga County Tuberculosis Public Health Association held a very successful clinic on May 12, 1921, and will hold a return clinic this spring. Several cases have been treated at the Onondaga County Tuberculosis Sanatorium." 4. Recommend better follow-up work. (See p. 15.)

Allegany Reservation, Salamanca, N. Y. (Rev. P. F. Hawthorne, Presbyterian Indian Church).

Reports no statistics, but is of the opinion that there is an increase in the spread of tuberculosis. Answer 2. A lack of proper nourishment from infancy may be one of the prominent causes; the fact that there are more deaths from tuberculosis between the ages of 16 to 21 would seem to show that the physical organism was not properly developed in order that it might endure the strenuous development of the adolescent period * * *. Loose moral habits, which in many cases begin before the age of 16. 3. Cattaraugus County Tuberculosis Association is making an effort to secure a resident nurse among the Indians on the Allegany Reservation. 4. Instructive visiting nurses for infant and child welfare work, care of the sick. Would be glad to use stereopticon slides as an educational method that the organization might have or could suggest.

Gowanda, N. Y. (A. D. Lake, M. D., Physician to New York Indians).

1. Believes tuberculosis to be declining. 2. Crowded, ill-ventilated huts, inadequate air space, ignorance of sanitation, improper food, lowered vitality. 3. The State maintains schools on all reservations, and for one year employed a nurse on one reservation with splendid results. No nurses for Indians are provided in this State, either by the State or Federal Government. He regards the discovery of cases and the instruction of families in the care of the disease as of paramount importance. Provision for sanatoria or hospitals for both incipient and advanced cases is also imperatively demanded. Refers to the good work accomplished by the Department of Indian Affairs elsewhere. In this State neither the Federal nor the State Government will assume the burden * * *, each denying the responsibility. It should never be forgotten, says Doctor Lake, that the Indian tuberculosis problem is also the white man's problem, as all these reservations through the whole of America are surrounded by the homes of the whites, and therefore the tuberculous Indian becomes an active infective agent in distributing the disease everywhere.

Tuscarora Indians, Lewiston, N. Y. (State Charities Aid Association, New York).

According to Doctor Kerr's letter to Miss Abbey, dated Lewiston, N. Y., March 25, 1922, there is little if any improvement in the prevalence of tuberculosis, due to poor hygienic conditions and close quarters. In answer to question 2, lack of nourishing food, intemperance, and insanitary conditions are mentioned. 3. Refers to clinics by the State department of health and local sanitary officer. Talks or lectures with moving pictures. Instructive visiting nurses (unfortunately discontinued for lack of funds). 4. A definite understanding as to who is responsible for the Indian welfare. 5. Resident physician and nurses on the reservations.

Gowanda Agency, N. Y. (H. C. Allen, Transmitted by State Charities Aid Association, N. Y.).

No. 1. No statistics. 2. Living in squalor; small, dirty house; no hygiene. 3. Nothing has been done that he is aware of. 4. Has no suggestions to offer, but says: "Education is necessary, and as far as I can see, educated Indians go back to old conditions on return to the reservation, usually."

North Carolina Sanatorium (F. B. McBrayer, M. D.).

1. Eleven thousand eight hundred and twenty-four Indians in North Carolina; 12 deaths in 1920. The death rate from tuberculosis for all races in 1920 was 113.2 per 100,000. The death rate among Indians is lower than among the white and black. There is no important Indian problem in this State. 2. The death rate is not increasing. 3. No special measures other than those employed among white and black—educational. 4. Probably not more than 60 patients could be secured in a sanatorium for Indians.

Cherokee Indians, North Carolina Jurisdiction (Dr. Russell D. Holt).

In this connection, the answers from Dr. Russell D. Holt, forwarded by James E. Henderson, superintendent of the Cherokee, N. C., jurisdiction, are of interest: 1. No, there are very few cases of tuberculosis on this reservation (see Appendix B). 2. (*a*) Undernourishment, caused by lack of sufficient food or at least lack of variety of sufficient food, and ignorance along line of dietetics and different food value; (*b*) exposure and insufficient clothing. 3. Propaganda by school physician and other employees and the distribution of literature. 4. Talks on health and sanitation followed up by demonstration methods for the purpose of educating the Indians along the causes mentioned in No. 2 above. (See also pp. 14 and 41.)

North Dakota Tuberculosis Association (Carrie Haugen, Secretary, Bismarck, N. Dak.).

1. No vital statistics. Tendency is not toward decrease. 2. Carelessness, lack of sanitation. 3. Association has visited Indians with traveling clinic, supplied literature concerning tuberculosis and sanitation. 4. An official and effective program of education. Indians most responsive and gladly heed those who take time and patience to teach them.

Oklahoma (A. R. Lewis, State Commissioner of Health).

Answer 1. From general observations and reports from nurses I have every reason to believe that tuberculosis is on the increase among the Indians. We have no statistics to bear out this opinion. 2. Insanitary conditions and mode of living. 3. The State has built and equipped two tuberculosis sanatoria. Indians may enter either of these for care and treatment. The State department of health and the antituberculosis

association distribute literature. The Federal Government has also a sanatorium where tuberculous Indians are treated exclusively. 4. Recommends health education and some legislation making treatment compulsory and attaching a penalty for the spread of the disease.

Oklahoma Public Health Association (Mr. Jules Schevitz, General Secretary).

Mr. Schevitz, November 28, 1921, writes as follows: "Oklahoma has more Indians than any other State; in fact, it has one-third of the national Indian population. About two years ago our executive committee appointed a special subcommittee on Indian health problems which consisted of Indian officials, Indian missionaries, and prominent Indians. I inclose a copy of the minutes of that meeting to give you an idea of their interest. For a time we employed an Indian field secretary, loaned us by the United States Indian Service, and we have been in communication with the United States Board of Indian Commissioners, the Bureau of Indian Affairs, as well as voluntary organizations, such as the international Y. M. C. A., home mission council, and others interested in Indian health."

Oregon Tuberculosis Association (L. Grace Holmes, R. N., Director Bureau of Surveys, Portland).

On March 7, 1922, Miss Holmes writes as follows: "This organization made a superficial survey on the Umatilla Reservation in Oregon in 1920. In the fall of 1921 we made a rather more intensive survey on the Klamath Indian Reservation. Our answers to your questions Nos. 2 and 4 are prompted by our experience in the latter survey. Answer No. 1. No statistics. No. 2. The Indians' low resistance, due to faulty diet and poor sanitation, and notably to the lack of expert supervision of public health on the reservation. No. 3. The Oregon State Board of Health is trying to secure better tuberculosis mortality and morbidity statistics from reservations. The Oregon Tuberculosis Association has launched a program of surveys and clinics on the reservation. No. 4. Better provision for hospitalization of tuberculous Indians. Definite training for public health work of every physician and nurse and field matron before appointment for field work in the Indian Service."

Oregon (State Health Officer, Portland, Dr. Frederick Strooker).

1. The statistics on hand do not show either an increase or a decrease. 2. Poor housing. 3. The Oregon Tuberculosis Association is making surveys. 4. The establishment of a sanatorium for Indians.

South Dakota (Public Health Association, Huron, S. Dak.).

1. No statistics. 2. No answer. 3. The South Dakota Public Health Association, a volunteer organization, is now making a tuberculosis survey of the State to ascertain the amount of tuberculosis in all the counties. The Indians are included in this. Through the schools the modern health crusade is being introduced as an educational medium of prevention.

South Dakota (Dr. P. B. Jenkins, Wanbay, Health Officer).

1. No statistics. 2. Contact. 3. None. 4. Federal action.

Utah Public Health Association (Albert A. Kneale, Fort Duchesne, Utah).

Such statistics as are available do not indicate a spread of tuberculosis among the Indians. Government physicians, who have resided among the Indians and who have made periodical visits and inspections from time to time, pronounce the Ute Indians of this jurisdiction unusually free from pulmonary tuberculosis. The most prominent predisposing causes are: 1. Ignorance as to the manner in which the disease is spread. I have seen a large circle of Indians, perhaps 15 or 20 in the circle, pass the pipe from hand to hand and from mouth to mouth until it had completely made the circle. I do not suppose that they have any idea whatsoever as to the germ theory of the disease. 2. The lack of ventilation in their houses. The Indian is apt to build a log house which is almost air-tight, in which he dwells a portion of the year. 3. The State health clinic was here last fall and we anticipate its return in the future. * * * On many reservations where tuberculosis is quite prevalent the Federal authorities have established hospitals and are doing a great deal to control the disease, but it has not been deemed advisable to do anything of that kind on this reservation. 4. I have nothing to suggest as a remedial course other than that when the health clinic next visits our country it be prepared to stay at least a month and examine not only the school children carefully but such Indians as we can induce to come before it.

Washington State Health Department (Dr. Paul A. Turner, Seattle, Wash.).

1. The reporting of tuberculosis among Indians is not sufficient to answer the question relating to increase or decrease adequately. 2. Insanitary conditions; susceptibility to the disease. 3. Attempts to educate in sanitary methods. Inspection and advice. Hospitalization. 4. A trained sanitarian should be available for full-time work in Indian communities of large size, and in smaller communities relative attention should be given. Funds necessary should, in my opinion, be appropriated by the Federal Government or the State.

Washington Tuberculosis Association (Bethesda Beale Buchanan, Seattle, Wash.).

1. No statistics. 2. Our coast Indians follow fishing for a living. The exposure is very great, and the drying of the fish, which is usually done in their own cabins, necessitates a closed room full of smoke and heat; in fact, they often do not have any windows in the room that can be opened * * *. Lack of ambition deprives them of any funds ahead of the day's need. They are undoubtedly mixed with some other race and are very unlike the Indians of the interior * * *. 3. As far as I know, the State authorities have done nothing to diminish the spread of tuberculosis among the Indians, and until very recently Federal authorities (Indian agents) rather resented the county nurses doing anything on the reservations, even though the Indian children were mingling with the whites in the schoolroom. They did not object to the children being examined, but they did not like the nurses' home visits on the reservation. Under these circumstances both the State and local tuberculosis associations have felt it wisest to keep hands off until such time as their efforts would be more welcome. The above has not been the case in every instance, but in the majority of instances. We are now getting some new Indian agents, who seem anxious for the best cooperation, and it seems that we could now cooperate to some advantage.

4. In my opinion the employment of properly trained, thoroughly experienced, Public Health nurses would be the very best thing possible to improve conditions. These nurses could do all of the social service work, etc., that the matrons do now, while they could do infinitely more, because of their special training. Then, too, we could, through our county nurses, secure a cooperation which is not possible when the workers on the reservation have not had the nurse's training. I believe the expense would not be any greater, while the returns would be infinitely more far-reaching and satisfactory.

Grays Harbor Antituberculosis League, Hoquiam, Wash.

Adopted June 9, 1920, the following resolution:

"*Be it resolved*, That we, the members of the Grays Harbor Antituberculosis League, favor the enactment of such legislation as is necessary to establish and maintain a full-time nurse on each of the Indian reservations in the United States: *And be it further resolved*, That a copy of these resolutions be placed on the minutes of this league, a copy sent to headquarters, and a copy forwarded to the proper committee in Washington, D. C.

"Mrs. A. L. CALLOW,
"Mrs. L. E. FOELES,
"Mrs. J. B. KINNE,
"*Committee.*"

Wisconsin State Board of Health (C. A. Harper, Health Officer, Madison, Wis.).

1. No complete statistics. Investigation made, however, shows large percentage of population afflicted with tuberculosis and tuberculosis on the increase. 2. Filth, poor housing conditions, and more or less constant contact on the part of individuals (all ages) between the sick and those afflicted with tuberculosis. 3. The Federal Government appears to be absolutely indifferent, as far as the welfare of the Indians on the reservation in this State are concerned. State board of health has made some investigations, but can accomplish little with the present force. W. A. T. A. is considering taking some action for the control of tuberculosis on the Indian reservations. 4 The Federal Government should take cognizance of the situation, put in medical men and nurses, segregate, as far as possible, and make a general clean-up of the filthy conditions. The Federal Government's attention has been called more or less repeatedly to these conditions, but indifference is the only answer.

Wisconsin Antituberculosis Association, Milwaukee, Wis. (Hoyt E. Dearholt, Milwaukee, Wis.).

1. No. On the contrary the data I have seen has been so contradictory as to make me mistrust all statistics relating to the subject. 2. Contact infection. See Mrs.

Brand's survey (p. 26). 3. Discovery clinics, and sanatorium and hospital provisions. 4. Social service follow up.

Wyoming State Health Department (Albert B. Tonkin, M. D., State Health Officer, Cheyenne, Wyo.).

1. None are reliable. 2. Poor nutrition, contact mothers with babies, maternal nursing, overcrowding in tents while sleeping, illy balanced rations for children. 3. I know of none on behalf of State or Federal authorities among Wyoming Indians. Wyoming Public Health Association made abortive efforts to survey in 1919. 4. Furnishing more competent medical supervision by Federal Government, medical service of Indian reservations should be put in United States Public Health Service; surveys by tuberculosis workers, education and cooperation; school supervision; various others, dietetic work; field workers.

Wyoming Public Health Association (Miss Etta M. Dobbin, Executive Secretary, Cheyenne).

Under date of March 17, 1922, Miss Dobbin writes as follows:

"I am vitally interested in seeing something done on our reservation in this State. At the time Miss Sinda Miers took her position with us in 1919 the Government hospital on the reservation was closed. The Government physician lived not on the reservation, but in Lander, where he gave his attention mostly to his own practice, occasionally visiting the reservation. I am glad to say that for a time following this the hospital was open and a resident physician in charge, together with a matron or nurse, but never has the hospital been open to tuberculosis cases, and it is well known that tuberculosis more than any other one thing thrives in Indian camps. Our nurse was handicapped because she did not have a suitable place in which to care for the tuberculous Indians. She conducted a health station and did her very best to teach sanitation and preventive measures, but you can readily see how difficult her task was. We are still hoping that we may yet have Miss Miers at work again on the reservation through assistance from the Department of Indian Affairs at Washington, because it is absolutely impossible for us to continue any definite work there unless we have financial assistance from the Government.

"On January 7, 1922, Doctor Tonkin wrote a letter to Doctor Hatfield, from which the following are extracts: 'We are now in the midst of compiling our death statistics for 1921, and in this connection I recall what you said about tuberculosis among the Indians. I have made a special effort to compile something along this line, and, having lived for 15 years on the border of the Wind River Reservation, I have some idea of conditions. At that time I was unable to do much owing to a lack of interest on the part of the Government, and particularly their representatives on the reservation. Correspondence by me to the Bureau of Indian Affairs would always elicit the information that the Government representatives were supposed to report births, deaths, and reportable diseases to the State board of health in the same manner as provided for our white population. When I would make a personal attempt to secure cooperation with the chief, as usual, I always received a promise, but that was as far as it went.

"'However, since taking over the duties of State health officer I have secured some cooperation with the following results: Since that time 33 deaths among the Arapahoe Tribe of Indians have been reported to me for the past six months. Of these 33 deaths, 19 of them were given the diagnosis of tuberculosis in some form or other, and 11 of them were deaths due to respiratory diseases. The other three were due to childbirth conditions. As you are aware, there are 1,316 Indians, according to 1920 census, in the State of Wyoming. This would give the crude death rate of 25.3 per thousand among our Indians practically from respiratory diseases, all of which, I believe, are due to tubercular coincidence. Of the 1,316 Indians, only about one-third of them, or not over 40 per cent, would be in the immediate neighborhood from which I secured these reports. So this would place the death rate from these causes very much higher than what is shown. I personally feel that the Indian situation in Wyoming, from tuberculosis, is a very grave one, and I know of no effort that your association can make that would result in so much good as some work or expenditure that would make an accurate survey of conditions among our Wyoming Indians and secure the cooperation of the United States Government in preserving this race of people for at least a few years longer * * *.'"

TABULATION OF ANSWERS TO QUESTIONNAIRE ON TUBERCULOSIS.

Question 1: Have you any statistics which indicate an increase or a decrease in the spread of tuberculosis among Indians?

Number of answers tabulated from agency physicians and superintendents, 178.

Number of answers tabulated from State tuberculosis associations and State boards of health, 39.

Character of statistics:

Answers from Federal agencies are based on annual reports, physicians' reports, and hospital records.

The answers from State associations and State boards of health are largely based upon personal impressions and a few surveys.

Classification of answers.

	Federal.	State agencies.
Slight increase	31	3
Considerable increase		1
Slight decrease	69	5
Considerable decrease	20	4
No change	58	3
No reliable vital statistics		23
Total	178	39

Question 2: What in your opinion are the most prominent predisposing causes in the spread of tuberculosis among Indians?

Classification of answers.

	Federal.	State agencies.
Answer A: Lack of ventilation in homes: careless with regard to exposure; improper diet: lack of sanitation; unhygienic habits: indifference and apathy	60	25
Answer B: Ignorance of cause and nature of disease, and lack of sanitation	23	23
Answer C: Poor living conditions	43	20
Answer D: Insanitary practices; indolence; poor food; hereditary weakness; lack of sanitation	26	12
Answer E: Intemperance: exposure; venereal diseases	1	5
Answer F: Excessive dissipation in past years; extended periods of deprivation; poor nutrition; pessimism: insanitary home life	3	4
Answer G: Effects of Spanish influenza	3	
Answer H: Inbreeding, and lack of sanitation	3	2
Answer I: Poor economic conditions; ignorance and skepticism with regard to teaching of personal hygiene, sanitation, and domestic economy	12	7
Answer J: Practically no tuberculosis	3	2
Answer K: Preference for native medicine men	1	1
Answer L: Lack of expert supervision of public health on reservation		2
Answer M: Racial susceptibility		4

Question 3: What methods have been adopted by the Federal and State authorities and State and local tuberculosis associations to diminish the spread of tuberculosis among the Indians?

Classification of answers.

	Federal.	State agencies.
Answer A: The Indian Office, through its medical service, its field matron service, its hospital and sanatorium service, and its industrial service, has sought to treat the sick, protect the well, to segregate those to whom it could give institutional treatment, and to improve the industrial and living conditions of the Indian people generally, and through its schools and by special propaganda it has sought to teach the principles of hygiene and sanitation. Relief measures to the indigent poor are provided for, to some extent, by a special appropriation entitled "Relieving distress and prevention, etc. of diseases among Indians." Tribal funds and individual Indian moneys are also used to a limited degree for the purpose of relief	178	
Answer B: Cooperation by State boards and State and local tuberculosis associations in matters of health campaigns—diagnostic clinics, sanatorium care, etc		17

Question 4: What action would you recommend for the alleviation of existing conditions?

Classification of answers.

	Federal.	State agencies.
Answer A: Isolation of patients; improvement of living conditions; disinfection of premises; and repeated examinations for those who are predisposed	34	15
Answer B: Education of Indians in hygiene and sanitation; isolation of the sick; and disinfection of premises	9	16
Answer C: Education in hygiene and sanitation	40	13
Answer D: Education: more hospitals; early diagnosis	34	11
Answer E: Better facilities for diagnosis, and increased facilities for hospitalization	10	5
Answer F: Legislation requiring compulsory treatment	9	2
Answer G: More health employees, particularly field matrons	23	7
Answer H: Hospitalization of advanced cases, and cooperation with State authorities in handling others	1	5
Answer I: Better industrial conditions	11	4
Answer J: Better food and a more balanced diet	4	4
Answer K: Health supervision by State boards, and Federal and State appropriation for that purpose		2
Answer L: More sanitary homes and better water supplies	1	1
Answer M: Withdrawal of all aid		1
Answer N: Model health center		1
Answer O: Definite training for public health work of every physician, nurse, and field matron before appointment		1
Answer P: Social service and follow-up work		2
Answer Q: Transfer of Indian medical service to United States Public Health Service		1

SUMMARY AND CONCLUSIONS.

A review of the evidence adduced in the foregoing pages justifies the following conclusions:

1. Scrofula and consumption were observed among the Indians of North America as early as 1635–1658. Dr. A. B. Holder, in a paper published in the Medical Record, New York, 1892, page 178, maintains that the Indians were never free from tuberculosis or scrofula, and refers to specimen 17223, Peabody Museum, Cambridge, Mass. (pictured in Bradford and Lovett's Orthopedic Surgery, p. 2), as showing evidence of prehistoric tuberculosis. On the other hand, Dr. Ales Hrdlička (Tuberculosis among certain Indian Tribes of the United States, Bull. 42, Bureau of Am. Eth., 1909, p. 1), declares: "As yet no bones of undoubtedly pre-Columbian origin have been found that show tuberculous lesions, and such lesions are very rare in Indian bones, dating from the period of the earliest contact with the whites."

2. The evidence indicates that in the early days of colonization the prevalence of tuberculosis among the Indians was no greater than among the white race, perhaps not as great. From the available data, it is also evident that there has been a progressive increase in the prevalence of the disease since their contact with the whites.

This is attributed by Hrdlička and others to a greater susceptibility of the Indian to the disease than the white man, which means a lesser immunization of his system, indicating the more recent introduction of the infection into his race. But Hrdlička very wisely adds: "It is to be assumed on purely logical grounds that the disease must have been much less frequent among the Indians in former times, when they lived a more natural and active life, were better inured to hardships, and with exception of particular localities and periods were better provided with suitable food."

3. The variations in the percentage of deaths from tuberculosis among the different tribes are so great that Bushnell, writing in 1920, on page 162, felt justified in declaring:

"Evidently, then, at least at the time of the reports (referring to surveys prior to 1913) no single formula expressed the situation of the American Indian as respects tuberculosis. Some tribes were thoroughly tuberculized, while others showed the characteristics of a recent acquaintance with the disease in its high fatality. In most of the Indians tribes it would probably be correct to say that tuberculization was progressing but was as yet not complete."

4. The variations in the prevalence of tuberculosis are by no means confined to the Indian race. One of the committee (Kober in his study of Occupation in Relation to Tuberculosis in 1919) found from the vital statistics of the United States Census Bureau that the average percentage of deaths from tuberculosis in 210,507 occupied males was 14.8 per cent and in 27,459 occupied females it was 21 per cent. The percentage of deaths from tuberculosis of all deaths varied from 5.6 per cent in such outdoor occupations as lumbermen to 29.2 per cent in longshoremen and stevedores; and in indoor occupations from 5.9 per cent, in bankers, to 28.3 per cent in male clerks and copyists, and even as high as 42.4 per cent in female clerks, bookkeepers, and office assistants. In view of these facts and in the light of our knowledge concerning the influence of environments, food, and economic conditions on the rise and fall of tuberculosis in some of the Indian tribes (see pp. 14–15, and in the American Negro p. 16), some observers hesitate to accept the conclusion that the American Indian was especially susceptible because of a lack of previous exposure. Those who are familiar with the tuberculosis movement, especially in the central European States during the World War, are deeply impressed with the fact that lack of food, both in quantity and quality, worry, anxiety, chronic fatigue, and undermined health are important factors in the reactivation and ravages of the disease.[1]

In the consideration of the question of susceptibility of the Indian to tuberculosis, we should bear in mind that the advent of the white race was promptly followed by a struggle for existence and subsistence. One of the baneful effects among the inland Indians was a gradual destruction and dispersion of their game and other natural sources of food supply, causing extreme suffering and a state of semi-starvation. (See pp. 6–9.)

The encroachment of the white race in all new territories meant the beginning of hardships, trials, and tribulations of the heretofore self-supporting aborigines. The story of Chief Winnemucca, page 8–9, and the conquest and the dire consequences to the Indian tribes of Nevada in 1865 is applicable to nearly every Indian tribe in the United States.

[1] The death rate from tuberculosis per 100,000 of population in old cities with a thoroughly tuberculized population, like Trier (Treves), increased from 204.1, in 1913, to 364.1, in 1918, and in Cologne, from 100.8 to 191.5 for the same periods. The increase was greater in the cities than in the smaller towns and in the country. This increase is probably correctly ascribed to deficiency of food, which would naturally be more marked in the cities than in the country, where the inhabitants could produce a portion of their food supplies. But in England, where there has been little cause to complain of lack of food, there has been a similar rise in the mortality from tuberculosis. (See Bushnell's Epidemiology of Tuberculosis, p. 19.)

Virchow, in 1849, during the prevalence of other epidemic diseases in Berlin, also encountered in April and May more tuberculous inflammation of the pia mater in children and adults, of the pleura, the pericardium and the peritoneum, fresh, mostly isolated (miliary) tuberculosis of the lungs, spleen, kidneys, epidymis, bones, brain, gland, and intestine, than he ever remembered to have seen before. (Bushnell, p. 174.)

It is not surprising that the relative percentage of deaths from tuberculosis should vary with the period of conquest and the natural sources of food supply and other living conditions. Above all, it should be remembered that poverty of the Indian, as in the white race, played a most important rôle in the spread of this and other communicable diseases, whether originally introduced by the white race or not.

IMPORTANT STATISTICAL DATA SHOWING THE RISE AND DECLINE IN THE GENERAL DEATH RATE AND THE MORTALITY FROM TUBERCULOSIS IN THE INDIAN POPULATION.

1. While the statistics prior to 1911 are incomplete and therefore unreliable, there is sufficient evidence to indicate that the death rate among the Indians gradually but steadily increased from 23.6 per 1,000 population in 1880 until 1913, when the general death rate was 32.24 per 1,000. The peak of excessive mortality was evidently reached in that year. In 1918 it had been reduced to 29.42 per 1,000, and in 1920 it was 22.33 per 1,000.

In 1911 the percentage ratio of the number of deaths from tuberculosis to the total number of deaths was 32; in 1915 it was 35, but from that year it began to decline until 1920 it was 27, after having dropped to 26 in 1917.

During the 10-year period there were made 645,434 examinations to determine the prevalence of tuberculosis. This does not mean that so many individuals were examined, but refers only to the aggregate of examinations made yearly among the Indians of the United States, exclusive of the Five Civilized Tribes, to ascertain their health status with respect to the prevalence of tuberculosis. The average number of examinations for the 10-year period was 64,543.

The evidence of tuberculosis among the Indians of the Five Civilized Tribes of Oklahoma has been determined by surveys and estimates to be about the same as that among the white people of the State living on the same industrial plane.

All along through the years there is maintained an almost definite relation of the latent tuberculosis cases, as determined by the findings to the number examined. The per cent of findings for latent tuberculosis for the whole period to the number examined is about 6.74, and that of the findings for active tuberculosis about 6.73.

The figures in the estimated column, while not so indicatory as the findings, nevertheless maintain a relation year by year which could not be arrived at by any system of guessing, for the various jurisdictions are widely scattered and the reports are submitted independently.

For further details see a statistical record of the prevalence of tuberculosis among Indians covering the period for 1911 to 1920, both years included, by States and jurisdictions (see Appendix A).

INCREASE IN THE INDIAN POPULATION SINCE 1900.

The foregoing statements find support also by the records of the United States Census Bureau announced September 26, 1921, which show that if the enumeration in 1900 and 1920 are fairly accurate, it may be assumed that there has been an increase of 7,241 in the Indian population since 1900. The statement further reads:

The only pronounced increase was reported for North Carolina from 7,851 to 11,824. The only other States which had in 1920, 1,000 or more Indian inhabitants and which reported increases in Indian population were Louisiana, Texas, Montana, Arizona, and California.

This very hopeful outlook is further confirmed and brightened by the following answers to our questionnaire which came from different and independent sources.

The superintendents of Eastern Cherokee Agency, N. C., Round Valley Agency, Calif., and Shivwits Agency, Nev., report that tuberculosis is practically unknown at these jurisdictions, and the superintendent of Jones Male Academy of Oklahoma, reports that tuberculosis has decreased 80 per cent among the Indians from whom his school draws its pupils in the last 20 years.

The superintendent of the Potawatomi-Kickapoo Consolidated Agencies, Kans., stated that the Indians under his jurisdiction rarely had tuberculosis. Dr. W. S. Rankin the secretary of the State board of health informed Doctor Kober at the last annual meeting of the National Tuberculosis Association that the North Carolina Indians not only lead the white and colored race in a lower tuberculosis rate, but also have the highest birth rates. It will be remembered that the Cherokee Tribe from 1883–1888 had more deaths than births (see p. 14).

Under date of May 30, 1922, Doctor Kober received the following table and explanatory letter from Dr. W. S. Rankin, the secretary of the Board of Health of North Carolina:

Doctor Rankin's Table of Vital Statistics of North Carolina for 1921.

Race.	Birth rate per 1,000.	Death rate per 1,000.	Tuberculosis death rate per 100,000.
White	32.9	9.6	67.7
Negro	34.5	14.3	186.6
Indian	43.3	12.7	67.0
State	33.4	11.1	101.0
Cherokee Indian (40 births 27 deaths)	24.7	16.7	24.8

Doctor Rankin added the following comment:

You will note that I have made a difference in the table between Indians and Cherokee Indians; of the latter there are 1,615, according to our latest population figures, who occupy a Government reservation in the western part of the State, situated in the counties of Swain and Jackson. These are the remnants of the old Cherokee Nation, a part of which refused to be moved to the Government reservation in what is now Oklahoma. They have maintained their racial integrity and have about maintained a constant population. The remainder of our Indian population, the total of which is 12,237, are popularly called Croatans. They are not on a reservation, but are, for the most part living in counties along the Cape Fear River and primarily in Robeson and Scotland Counties. There has been some admixture of both white and Negro blood.

RETROSPECT.

THE INDIAN IS NO LONGER A VANISHING RACE.

The following is an extract of an address delivered at the Mohonk Conference at Mohonk Lake, N. Y., October 18, 1916, by Dr. Laurence W. White, then superintendent, Lac du Flambeau (Wis.) Indian School:

At the Panama Pacific Exposition in San Francisco last year there was placed in a prominent part of the grounds a statue that attracted a great deal of attention. The subject was an Indian with everything to indicate that he was worn and weary and had abandoned all hope. The forlorn and dejected figure was mounted upon a pony which was in every detail in perfect harmony with his rider. The title of this pathetic piece of statuary was "The end of the trail." The author had evidently intended to indicate that the "noble red man," after having passed from the Atlantic seaboard across the continent, first having been halted at various places in the passing, and segregated upon small reservations, each smaller and smaller until at last he had reached the extreme limit of his career by coming to the end of the continent—to him, the world. In a word, it pictured the last of a dying race.

One Sunday during August, 1915, while the conference of Indian workers was in progress, many of the churches of San Francisco held services at which the theme was "The Indian and his condition," and at almost all of these services the minister spoke of the pathetic significance of this statue, and were unanimous in proclaiming that: "Lo, the poor Indian is fast passing from our midst, and that we should have him with us but a short time for the Indian race was a dying race."

This was not a new idea. For a great number of years we have had chanted into our ears the facts concerning a dying race until we have become well accustomed to it, and, I fear, have commenced to take it as a matter of fact. For it was true, the number of Indians was becoming smaller each year, and this was largely due to the faulty manner in which he had taken up the white man's civilization. He was taken from a domain as large as the continent itself and compelled to occupy very restricted areas before he was taught the proper rules of sanitation. The white man initiated him both by precept and example into the mysteries of drowning his many troubles in a bottle of whisky without first telling him that in that same bottle of whisky lurked death and destruction to his mental, moral, and physical being. He has been given food to which he was not accustomed without a knowledge of how properly to prepare it. To sum it up, he had been forced into a new world and compelled to live a new life without a rule or law yet learned by which he might adjust himself to his new rroundings.

Is it a thing to be marveled at that he should become the prey to all the ills to which mankind is heir? A race of people who had naturally been of powerful physique had been reduced to a state of weaklings; a condition of degeneracy had overtaken the former red man of the forest who had roved at will over vast areas. His habitation was now more or less permanent, and, in order to be healthful, must be kept clean. This he did not understand nor undertake.

Children were born into surroundings which were far from sanitary, with possibly a drunken father and mother, neither of whom had made any preparations for the arrival, the care, or the maintenance of children. Is there any wonder such a one frequently succumbed before the end of the second summer after its advent into such a vale of tears?

Those who escaped death by a narrow margin through the years of childhood and reached manhood and womanhood, arrived there too frequently only to become a subject to be preyed upon by some such disease as tuberculosis or trachoma. Too often the young Indian arrived at adolescence already scarred and disfigured by the former and frequently blinded by the latter. * * *

The Indian had indeed passed into a state of decadence and a lethal issue was imminent, but thanks to the progress of medical science and the splendid humanitarian efforts of our Government, a noble race of people has been snatched from the very jaws of death, as shown by the statistical data presented on pages 40–41. In evaluating these achievements, it should be realized that although the health service section of the Bureau of Indian Affairs was nominally organized in 1873, very little was and could be accomplished

with the limited appropriation and personnel. The first hospital was established in 1882, and in 1900 there were only 5 hospitals. In 1911 there were 60 hospitals, in 1920 87 hospitals, which have been reduced in 1922 to 73, because of increased cost of maintenance and a decrease in appropriations.

In 1900 there were only 83 physicians, 25 nurses, 15 hospital employees, and 21 field matrons. In 1922 there was 1 chief medical supervisor, 1 medical supervisor, 6 special physicians, 6 field dentists, 200 physicians, 6 traveling nurses, 100 nurses, 100 hospital employees, and 90 field matrons. The beginning of intelligent and progressive health work was made with the appointment of Dr. Joseph A. Murphy as chief medical supervisor on November 28, 1908, who inaugurated practically the first intensive health campaign among the Indians. In this he was ably assisted by Drs. Robert L. Russell, Jacob Breid, and Ferdinand Shoemaker. Doctor Murphy remained in the service until November 12, 1916, when he resigned to take charge of the health work in the public schools of the city of Washington, a position which he still fills in a most creditable manner. His manual on "Tuberculosis, Its Cause, Prevention, and Treatment" was published in 1910 for use in connection with the Indian schools. This illustrated pamphlet presented in a simple way the facts which the pupils and members of the family should know in regard to tuberculosis, and to show them in a practical way how to modify home conditions, so as to prevent the spread of the disease. The 10 health rules originally published by the District of Columbia Tuberculosis Association were also introduced into the Indian schools, and Doctor Murphy was the first man in this country to originate the awarding of prize buttons, etc., and may therefore be justly regarded as a pioneer of the modern health crusade in schools. Under his supervision the campaign to "save the babies" was also introduced, and the number of physicians, nurses, hospital employees, and field matrons greatly increased.

In 1918 Dr. R. E. L. Newberne was appointed chief medical supervisor. He had the benefit of 13 years' experience in public health work with the United States Public Health Service in the Philippine Islands, and 14 years' service with the Indian Bureau. The chief medical supervisor, in addition to his general duties, makes recommendations for the improvement of the health service to the Commissioner of Indian Affairs, and also acts as general medical field inspector, and principal epidemiologist for the bureau. (Doctors Lawrence W. White, Newberne, and Murphy have kindly prepared a History of the Medical Service, which will be found in Appendix D.)

Every Commissioner of Indian Affairs, regardless of political or religious creed, has shown a most intelligent and sympathetic interest in the solution of the Indian health problem, as shown by the abstracts from their annual reports from 1911 to 1920. (See Appendix C.)

In this connection the distinguished humanitarian services rendered to the Indians by the Hon. Edgar B. Meritt, Assistant Commissioner of Indian Affairs, should be recognized. Mr. Meritt has been in the service of the Government for 28 years and on duty as law clerk and Assistant Commissioner in the Bureau of Indian Affairs for 16 years. For the last 12 years he has had charge of legislation relating to Indians before the respective congressional committees and succeeded

in securing increases in the general health appropriations known as "Relieving distress and prevention of diseases among Indians" from $40,000 in 1911 to $375,000 in 1922. This generous response by the Federal Government is largely due to the convincing arguments of a man who, by reason of his long term of office, was perfectly familiar with the vital needs of the Indian Service. Mr. Meritt has also been deeply interested in better housing conditions of our Indians, and in June, 1912, published a strong plea for sanitary homes in the Red Man, a magazine issued in the interest of the native American. The present Commissioner, Hon. Charles H. Burke, was formerly chairman of the Committee on Indian Affairs in the United States House of Representatives and is keenly impressed with the needs of our Indians. His remedial recommendations will doubtless carry great weight.

In 1919 the Committee on Indian Affairs of the House of Representatives held hearings on the condition of various Indian tribes and among other things considered the possibility of having the Public Health Service take over the health activities of the Bureau of Indian Affairs. At that time Surg. Gen. Rupert Blue appeared before the committee and recommended that the Public Health Service should not take over the work. The Bureau of Indian Affairs was also opposed to such a step. It was said that the medical problems of the Indian Service were closely blended with the educational, social, and industrial problems which concern a race in its critical social and economic transition.

Of adverse critics there are still very many, but in view of the real accomplishments of the Indian Service during the last decade, in the face of the most adverse circumstances, it can not be claimed that there has been a lack of intelligent and efficient direction in the health movement among the Indians. The efforts of the bureau and its health service naturally find their limitation in the lack of adequate funds, and all fair-minded critics will probably concede that what has been accomplished marks a new epoch in Indian history, and is a most encouraging indication of a still more bountiful harvest in the future.

RECOMMENDATIONS.

Provisions have been made for the care and treatment for about 569 tuberculous children in connection with 12 school sanatoria and agency hospitals located in Arizona, Idaho, Iowa, Montana, Nevada, New Mexico, North Dakota, Oklahoma, and Washington. The most urgent needs of the Indian medical service are provisions for the care and treatment of adults in the incipient and advanced stages of tuberculosis. Such provisions have been an important factor in the success of the crusade against the disease in all civilized countries and without which the full measure in prevention can not be attained.

The Bureau of Indian Affairs fully realized the danger of a lack of facilities for the segregation of advanced cases, for in a letter dated November 25, 1921, Commissioner Burke says:

> I believe that a helpless patient is more of a danger than one who has a good chance for recovery, for he is more careless and inclined to be reckless in his hygienic habits. Noninfected families are sometimes obligated by the compelling dictates of humanity to care for indigent incurable patients, at the sacrifice of their own personal safety.

To enable the Commissioner of Indian Affairs to meet the situation properly, there are needed two or three sanatoria for adults, one of them a hospital for hopeless cases, where an adult Indian can go to die in peace and comfort without jeopardizing the lives of those to whose care he is committed.

This sound policy is absolutely essential for anything like reasonable success in the mitigation of the spread and ravages of the disease. It is urged in 156 out of 217 answers to our questionnaire relative to remedial recommendations, 11 of which also advocate legislation requiring compulsory treatment.

2. The committee also recommends the employment of additional field nurses (Public Health nurses) and matrons. The value of visiting and instructive nurses in the care of the sick and in prevention of disease in prenatal care and infant welfare work has been abundantly demonstrated not only in the country at large but also in the Indian medical service. The same is true of the field matron, the champion of cleaner and better homes, simple and nutritious food, improved health conditions, and healthy babies.

3. With few exceptions the spirit which animates the work of the physicians, teachers, and other employees in the Indian Service in the conservation of the health of our Indians, especially during the past decade, is worthy of commendation and praise. The committee strongly recommends increased compensation for all full-time salaried medical officers and the continuance of all the health activities now inaugurated with the utmost vigor and sympathetic interest and enthusiasm. The keynote of education should be how to live, how to work, and how to become a sturdy, self-supporting, and proud citizen of a great nation. The keynote in the health campaign should be prevention is greater than cure. With this object in view the crusade must begin with systematic sanitary inspections and the removal of all insanitary conditions and habits, proper supervision of the food and water supplies, and a well-balanced diet in the institutions and homes. The pasteurization or simple scalding of the milk for all classes, but especially for infants and children is strongly urged, as well as the introduction of milk goats. Great attention should be given to infant welfare work and the prevention of primary infection in children.

4. It has come to the knowledge of your committee that in some States, notably in the State of New York, there is a conflict of opinion as to whether the Federal or State Government is responsible for the health of the Indians. It appears that the United States Government has never made any appropriation or established any health service for the New York Indians, because the treaties between the Six Nations of New York and the United States have no reference to the health of the Indians, the treaty stipulations being strictly complied with as far as they go.

The matter of health protection has been left to the State authorities, and in case of epidemics the State has always acted, as also in a few isolated instances of antituberculosis work referred to on pages 32–33. The State board of health has had the matter under consideration for some time, but as yet no plans appear to have been put into execution. It also appears that for years various efforts have been made to obtain action by Congress to eliminate this confusion.

In view of these facts, and in justice to the six native tribes of the State of New York, your committee urgently recommends that the conflict of jurisdiction may be brought to the attention of the Department of Justice with a view of securing remedial action.

5. The policy of the Bureau of Indian Affairs has been to make the Indians self-supporting by teaching them how to work and the habits of economy and thrift. While there are a good many Indians who are citizens and taxpayers, it should be remembered that the majority of the 336,337 Indians in the United States are poor and scattered; particularly those in the South, the Middle West, the West, and Southwest. A few Indians in Oklahoma are rich.

It is well known that most of these Indians are industrious and willing to work when an opportunity is afforded. Their employment unfortunately is often only of a temporary character—during the haying, planting, and harvesting season—and the income is wholly inadequate to maintain a proper standard of living. Their own agricultural efforts are often blighted by droughts, early and late frosts, locust and insect pests, and under such circumstances they are brought to a state of extreme deprivation of food and other necessities of life. Indeed, their vitality is often so reduced that they are unable to do an honest day's work and are cruelly accused of being lazy, when in reality they have not sufficient food to generate heat and energy.

The Bureau of Indian Affairs is perfectly aware that improper and insufficient food is a very important cause in the undue prevalence of tuberculosis, and yet in extreme emergencies, such as reported to the committee among the Blackfeet Indians, at Browning, Mont., it is difficult if not impossible for the bureau to meet the situation adequately for lack of sufficient funds Your committee is convinced that the Bureau of Indian Affairs is in no way disposed to pauperize our Indians, and certainly should be intrusted with sufficient funds for immediate relief of distress.

WHAT STATE HEALTH BOARDS, STATE AND LOCAL ORGANIZATIONS, AND THE GENERAL PUBLIC CAN DO.

The enactment of laws for the suppression of vice diseases and the mescal button (peyote habit), even for sacramental purposes, is clearly indicated.[1] The committee also feels that cooperation of

[1] Since the report was written an excellent pamphlet on peyote has been prepared by Dr. Robert E. L. Newberne, chief medical supervisor, under the direction of Commissioner Charles H. Burke, and was published by the Government Printing Office Bureau as a convenient source of information for the employees of the Indian Service and for supplying those who are interested in securing regulative legislation against the sale, shipment, and use of peyote, with the kind of data most frequently requested. This is a matter of vital importance, for, as Commissioner Burke says: "Peyote is said to be a narcotic drug, yet it is not covered by the provisions of the Harrison Narcotic Act; it is said to be an intoxicant, but its use is not interdicted by the national prohibition amendment to the Constitution of the United States."

It is gratifying to reproduce here the following circular on State Legislation Against Peyote:

STATE LEGISLATION AGAINST PEYOTE.

[Extract from a report of Aug. 11, 1922, by Dr. Robert E. L. Newberne, the chief medical supervisor, United States Indian Service, on Potawatomi Agency, Kans.]

The use of peyote was extending until the passage of a peyote law at the second session of the legislature in 1920. The law has been enforced by the local officials, and the courts have imposed both fines and prison sentences.

A few months ago a peyote high priest was arrested while conducting a so-called religious meeting. The court refused to take cognizance of the plea that the use of peyote was a religious rite and imposed a fine of $50 and six months' imprisonment. This sentence broke up the peyote church among these Indians. If they now use peyote, they do it clandestinely, for no public peyote meeting is permitted for any purpose whatever.

I was in Topeka while the peyote bill was under consideration by the State legislature and was consulted with regard to the scientific nomenclature and botanical classification of the drug.

Kansas has the only effective peyote law that I have any knowledge of, and so far there has been no question as to its constitutionality.

The text of the law reads as follows:

"AN ACT relating to Lophophora williamsii or peyote (pellote) and Agava americana (commonly known among Kansas Indians as mescal); prohibiting the use or possession thereof, traffic therein, and providing penalties for the violation of this act.

"*Be it enacted by the Legislature of the State of Kansas:*

"SECTION 1. That it shall be unlawful for any person, firm, corporation, or association to sell, furnish, or give away, or offer to sell, furnish, or give away, or to have in his or its possession peyote (pellote), botanically known as Lophophora williamsii, or Agava americana, commonly known as the mescal button or any compound, derivative, or preparation thereof.

"SEC. 2. Any person who shall violate any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not to exceed $500 or imprisonment in the county jail for a period of not to exceed six months, or by both such fine and imprisonment.

"SEC. 3. This act shall take effect and be in force from and after its publication in the official State paper."

The good effects of the suppression of peyote are already noticeable. Before the law was made operative the habit was growing, and all its deleterious effects were manifest. The chief of Indian police of the Potawatomi Consolidated Agency told me that he knew 13 young men between 18 and 30 years of age of the Potawatomi Tribe whose deaths could be attributed to the use of peyote.

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State and other agencies in an advisory capacity will be greatly appreciated by the Bureau of Indian Affairs and the personnel of the Health Service.

Great good can be accomplished by our State and local antituberculosis associations and educational and social organization. In the nation-wide campaign for better health and a strong, vigorous, virile nation we should not forget our duties and responsibilities to the native races of this country who have been victims of most deplorable environments and will respond promptly to improved environment. But no amount of health education will suffice to secure definite and lasting results until we improve their economic conditions and give them a chance to work and earn an honest living. When we extend a helping hand and evince a truly sympathetic interest in their welfare, and do as much uplifting work as we are disposed to do for our alien residents and among far-away pagan races, we will have only in part discharged our obligations to the native race that has suffered so much and to whom we are so deeply indebted for possessing the immense natural resources of their native land.

Your committee is greatly indebted to the Commissioner, Hon. Charles H. Burke, and Assistant Commissioner of Indian Affairs, the Hon. Edgar B. Meritt, and also to the health section of the bureau, for valuable material and aid in the preparation of this report.

Respectfully submitted.

GEORGE M. KOBER, M. D., LL. D., *Chairman.*
GEORGE E. BUSHNELL, M. D.
JOSEPH A. MURPHY, M. D.
ALBERT B. TONKIN, M. D.
WILLIAM H. BALDWIN.
HOYT E. DEARHOLT, M. D.

APPENDIX A.

ESTIMATES AND REPORTS OF INDIAN POPULATION MADE TO THE BUREAU OF INDIAN AFFAIRS, 1759 TO 1921.

Indian population of the United States from 1759 [1] to 1921.

Year.	Authority.	Number.	Year.	Authority.	Number.
	Estimate of—			Report of—	
1759	George Croghan	19,500	1886	Indian Office	334,735
1764	Colonel Bouquet	54,960	1887	Do	243,299
1768	Captain Hutchins	35,930	1888	Do	246,036
1779	John Dodge	11,050	1889	Do	250,483
1789	Secretary of War	76,000	1890	United States Census	248,253
1790	Gilbert Imbay	60,000	1891	Indian Office	246,834
	Report of—		1892	Do	248,340
1820	Morse on Indian affairs	471,036	1893	Do	249,366
1825	Secretary of War	129,366	1894	Do	251,907
1829	Do	312,930	1895	Do	248,340
1832	Estimate of Samuel J. Drake	293,933	1896	Do	248,354
	Report of—		1897	Do	248,813
1834	Secretary of War	312,610	1898	Do	262,965
1836	Superintendent of Indian Affairs	253,464	1899	Do	267,905
			1900	Do	270,544
1837	Do	302,498	1901	Do	269,386
1850	H. R. Schoolcraft	388,229	1902	Do	270,238
1853	United States Census, 1850	400,764	1903	Do	263,233
1855	Indian Office	314,622	1904	Do	274,206
1857	H. R. Schoolcraft	379,264	1905	Do	284,079
1860	Indian Office	254,300	1906	Do	291,581
1865	Do	294,574	1907	Do	298,472
1870	United States Census	313,712	1908	Do	300,412
1870	Indian Office	313,371	1909	Do	300,545
1875	Do	305,068	1910	Do	304,950
1876	Do	291,882	1911	Do	322,715
1877	Do	276,540	1912	Do	327,425
1878	Do	275,595	1913	Do	330,639
1879	Do	278,628	1914	Do	331,250
1880	United States Census	322,534	1915	Do	333,010
1880	Indian Office	256,127	1916	Do	335,753
1881	Do	326,258	1917	Do	335,998
1882	Do	326,039	1918	Do	336,243
1883	Do	331,972	1919	Do	[2] 333,702
1884	Do	330,776	1920	Do	336,337
1885	Do	344,064	1921	Do	340,838

[1] Figures from 1759 to 1900 as given in Report of Indian Office for 1900.
[2] Decrease due to Spanish influenza.

APPENDIX B.

TUBERCULOSIS AMONG INDIANS.

Statistical record from 1912 to 1921.

Fiscal year.	Population.[1]	Births.	Deaths.	Tuberculosis deaths.	Per cent of tuberculosis deaths.[3]	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
1911	195,813	5,702	5,643	1,825	27	44,354	4,038	3,141	21,397
1912	183,757	7,049	5,949	1,894	32	58,266	4,529	3,357	24,315
1913	190,505	6,915	5,488	1,843	33	61,201	4,567	3,445	23,099
1914	199,393	6,964	5,778	1,839	32	67,895	4,946	3,299	21,980
1915	205,450	6,542	5,632	1,986	35	66,729	4,318	2,877	22,834
1916	209,224	6,092	4,570	1,347	29	71,685	4,393	4,302	23,564
1917	207,903	5,340	4,594	1,210	26	83,882	6,775	6,032	27,791
1918	205,249	5,571	[4] 4,682	1,266	27	64,272	3,067	3,941	23,021
1919	205,468	6,344	[5] 9,462	1,330	27	62,756	2,829	3,293	24,278
1920	206,868	6,510	6,070	1,230	20	66,718	3,585	4,519	24,773
Grand total	(6)	63,029	57,868	15,770	29	647,758	43,047	38,206	237,052

[1] Exclusive of more than 100,000 Indians of the Five Civilized Tribes.
[2] Exclusive of influenzal deaths.
[3] Percentage relation of deaths from tuberculosis to total number of deaths.
[4] Average population reported on, 191,564.
[5] Excess of deaths due to Spanish influenza.

The variation in population figures do not refer to changes in population but to the number of Indians included in the reports.

Vital statistics and tuberculosis, fiscal year 1911.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Arizona	39,216	1,261	1,675	657	9,241	758	563	6,542
Camp McDowell	1,166	8	10	5	124	.....	7	52
Camp Verde	400	20	19	7	.....	.....	.....	.....
Colorado River	457	12	39	18	440	47	42	91
Fort Apache	2,344	132	57	20	387	137	91	1,524
Fort Mohave	851	26	57	19	.....	34	23	.....
Havasupai	172	10	15	4	16	.....	6	31
Kaibab	89	5	1	.....	1	.....	.....	3
Leupp	1,000	.....	.....	.....	5	.....	.....	50
Moqui	4,118	174	177	40	1,000	84	56	205
Navajo	10,000	600	1,000	450	1,500	31	21	520
Pima	4,939	86	88	30	1,664	262	174	856
San Carlos	2,201	23	36	17	1,000	.....	20	32
Sells	4,515	.....	.....	.....	354	84	56	2,900
Truxton Canon	486	3	15	7	150	.....	14	48
Western Navajo	6,508	162	161	40	2,600	79	53	230
California	11,221	141	191	75	2,022	162	164	658
Cahuilla	223	1	4	3	.....	.....	1	1
Campo	211	3	5	1	52	31	20	.....
Capitan Grande	175	.....	.....	.....	.....	.....	.....	.....
Digger	43	1	6	2	.....	.....	.....	.....
Fort Bidwell	632	6	19	10	79	.....	13	32
Fort Yuma	743	17	53	13	200	29	20	94
Greenville	2,000	.....	.....	.....	140	14	10	200
Hoopa Valley	1,244	22	21	11	273	16	10	26
Independence	962	24	20	13	110	21	14	84
La Jolla	282	4	1	.....	24	.....	2	2
Malki	378	3	2	2	73	.....	8	11
Martinez	298	4	10	2	74	.....	13	20
Mesa Grande	280	.....	.....	.....	.....	.....	.....	.....
Pala	255	5	8	.....	98	.....	2	2
Pechanga	187	4	2	2	28	.....	.....	.....
Rincon	358	1	1	1	19	.....	2	2
Round Valley	706	17	17	5	550	37	25	81
Soboba	209	8	8	5	10	.....	5	11
Upper Lake	1,748	.....	.....	.....	180	14	10	77
Tule River	159	10	7	.....	.....	.....	.....	.....
Volcan	328	11	7	5	110	.....	9	15
Colorado	841	45	19	2	211	14	10	85
Navajo Springs	479	22	6	.....	136	.....	.....	.....
Southern Ute	362	23	13	2	75	14	10	85
Idaho	3,791	86	135	63	1,913	471	330	896
Coeur d'Alene	623	30	36	7	450	.....	17	97
Fort Hall	1,779	44	51	14	463	34	22	71
Fort Lapwai	1,389	12	48	42	1,000	437	291	728
Iowa, Sac and Fox	369	13	19	9	150	.....	17	36
Kansas	1,309	47	35	10	298	11	7	32
Kickapoo	577	18	13	.....	80	.....	7	18
Potawatomi	732	29	22	10	218	11	.....	14
Michigan	1,352	7	36	.....	.....	.....	.....	.....
Bay Mills	255	7	6	.....	.....	.....	.....	.....
Chippewa of Lake Superior	1,097	.....	30	.....	.....	.....	.....	.....
Minnesota	10,361	361	204	75	4,250	416	286	971
Fond du Lac	954	52	24	10	428	28	18	144
Leech Lake	1,721	51	40	5	449	28	18	.....
Nett Lake	622	18	6	1	25	.....	12	44
Red Lake	1,413	72	53	25	(1)	(1)	(1)	185
White Earth	5,651	168	81	34	3,348	360	238	598
Montana	10,814	396	437	91	3,495	577	383	1,319
Blackfeet	2,555	120	100	.....	1,257	247	164	411
Crow	1,725	62	83	14	1,782	97	64	.....
Flathead	2,271	66	60	16	.....	52	35	119
Fort Belknap	1,008	30	51	6	110	40	26	200
Fort Peck	1,784	90	100	39	.....	97	65	162
Tongue River	1,381	28	43	16	346	44	29	427

[1] No examination.

Vital statistics and tuberculosis, fiscal year 1911—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Nebraska	3,809	140	151	13	648	.....	31	76
Omaha	1,279	38	72	.....	319	.....	.....	.....
Santee	1,462	48	28	3	202	.....	18	18
Winnebago	1,068	54	51	10	127	.....	13	28
Nevada	2,551	58	96	36	395	13	27	292
Fallon	313	10	7	1	100	.....	4	4
Fort McDermitt	346	7	11	6	50	.....	11	.....
Lovelocks	103	4	6	.....	16	.....	.....	.....
Moapa River	125	2	10	8	.....	.....	.....	9
Nevada	591	2	21	2	229	13	9	79
Walker River	523	10	30	17	(1)	(1)	(1)	200
Western Shoshone	550	23	11	2	.....	.....	3	.....
New Mexico	21,121	444	524	63	3,143	115	104	1,833
Albuquerque Pueblo	4,391	188	178	18	1,200	29	20	59
Jicarilla	720	13	41	16	.....	32	21	70
Mescalero	452	14	15	3	122	.....	7	14
Pueblo Bonito	2,686	39	37	.....	425	.....	13	18
San Juan	8,000	.....	23	12	347	50	34	1,588
Santa Fe Pueblo	3,302	122	92	11	340	.....	4	80
Zuni	1,570	68	138	3	709	4	.....	4
New York, New York agency	5,436	.....	.....	.....	.....	.....	.....	.....
North Carolina, Cherokee	2,015	52	36	4	546	.....	19	44
North Dakota	8,253	298	271	59	1,392	170	114	334
Fort Berthold	1,123	33	40	17	200	22	15	37
Fort Totten	974	31	50	12	292	44	29	130
Standing Rock	3,381	96	128	21	900	81	54	128
Turtle Mountain	2,775	138	53	9	.....	23	16	39
Oklahoma	117,186	635	459	83	2,041	59	150	606
Cantonment	762	36	28	6	368	.....	17	97
Cheyenne and Arapaho	1,234	41	58	17	250	28	18	46
Fort Sill Apache (under War Department)	261	.....	.....	.....	.....	.....	.....	.....
Kaw	160	56	3	1	33	.....	4	4
Kiowa	4,081	234	181	37	483	.....	15	48
Osage	2,072	5	33	.....	100	.....	8	170
Otoe	416	20	18	2	202	31	20	69
Pawnee	651	29	32	6	225	.....	20	40
Ponca	639	32	29	2	147	.....	18	39
Red Moon	163	10	6	3	34	.....	7	70
Sac and Fox	630	28	19	1	182	.....	6	6
Segar	574	19	18	7	17	.....	17	17
Seneca	1,883	.....	.....	.....	.....	.....	.....	.....
Shawnee	2,434	125	34	1	.....	.....	.....	.....
Five Civilized Tribes	101,287	.....	.....	.....	.....	.....	.....	.....
Oregon	11,553	161	118	318	947	24	27	2,612
Klamath	1,116	32	43	13	222	14	8	133
Roseburg	8,150	(1)	(1)	(1)	(1)	(1)	(1)	2,000
Siletz	434	22	23	5	300	10	6	16
Umatilla	1,091	21	35	.....	.....	.....	.....	.....
Warm Springs	762	85	35	5	425	.....	13	463
South Dakota	20,352	846	546	164	7,146	957	671	3,648
Cheyenne River	2,610	101	99	.....	.....	.....	.....	.....
Crow Creek	993	40	50	13	400	10	14	43
Flandreau	282	8	5	1	381	.....	9	11
Lower Brule	474	15	17	10	140	19	12	51
Pine Ridge	6,953	317	172	79	4,513	704	469	1,837
Rosebud	5,224	223	101	33	1,102	190	127	1,346
Sisseton	2,059	64	30	.....	110	.....	17	140
Yankton	1,757	78	69	28	500	54	23	220
Utah	1,307	42	62	15	779	32	25	82
Shivwits	126	3	2	1	51	.....	3	4
Uintah and Ouray	1,181	39	60	14	728	32	22	78

[1] No examination.

Vital statistics and tuberculosis, fiscal year 1911—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Washington	10,904	311	303	51	1,946	88	90	942
Colville	2,957	75	92	23	590	70	46	188
Cushman	3,000	91	64	.....	750	.....	.....	.....
Neah Bay	718	23	25	7	218	.....	14	24
Tulalip	1,607	49	54	21	.....	.....	18	.....
Yakima	2,622	73	68	.....	388	18	12	730
Wisconsin	10,360	312	276	30	3,231	137	101	363
Carter	440	.....	.....	.....	8	.....	8	.....
Hayward	1,252	10	16	3	429	32	22	87
Keshena	2,298	90	45	5	852	14	10	54
Lac du Flambeau	730	14	24	8	200	41	28	61
LaPointe	2,119	65	73	14	1,159	50	33	100
Oneida	2,333	76	43	.....	583	.....	.....	.....
Tomah	1,248	51	75	.....	.....	.....	.....	61
Wyoming: Shoshone	1,692	46	50	7	560	34	22	56

Vital statistics and tuberculosis, fiscal year 1912.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[1]	Active tuberculosis.[1]	Estimated tuberculosis.
Arizona	38,382	2,187	2,187	873	11,667	873	651	6,500
Camp McDowell	1,168	35	34	10	116	10	4	53
Camp Verde	417	16	5	2	(2)	(2)	(2)	3
Colorado River	506	17	20	11	402	20	8	86
Fort Apache	2,371	82	65	7	496	150	91	1,543
Fort Mohave	844	17	30	14	400	10	8	36
Havasupai	169	10	13	2	(2)	(2)	(2)	(2)
Leupp	1,200	50	30	9	450	20	10	49
Kaibab	89	4	3	2	2	1	0	1
Moqui	4,068	252	307	52	800	40	29	186
Navajo	10,000	[1] 1,200	[1] 1,200	[1] 600	1,000	70	40	1,100
Pima	3,624	101	105	21	3,061	238	200	698
San Carlos	2,353	62	51	11	700	12	10	75
Sells	4,555	124	128	41	1,060	100	91	1,875
Truxton Canon	483	12	18	14	180	(2)	(2)	254
Western Navajo	6,535	205	178	77	3,000	202	160	541
California	8,637	170	250	63	2,323	157	116	407
Bishop	1,000	22	21	4	59	10	8	43
Campo	212	2	2	1	148	4	2	6
Digger	42	0	2	1	(2)	(2)	(2)	(2)
Fort Bidwell	628	45	35	2	126	10	9	22
Fort Yuma	833	14	30	7	325	24	20	66
Greenville	570	4	1	1	125	10	8	47
Hoopa Valley	1,269	22	71	8	456	22	20	85
Malki	371	4	15	4	169	5	3	9
Martinez	273	4	5	.....	.....	(2)	(2)	6
Pala	638	9	11	9	161	8	4	12
Pechanga	215	3	4	2	28	(2)	.....	(2)
Round Valley	1,342	13	19	6	342	40	24	64
Soboba	428	11	13	6	149	14	10	16
Tule River	153	7	11	4	(2)	(2)	(2)	(2)
Volcan	693	10	10	8	235	10	8	31
Colorado	860	35	16	2	220	15	10	51
Navajo Springs	493	18	4	0	136	1	0	1
Southern Ute	367	17	12	2	84	14	10	50

[1] Estimated.

[2] Statistics not available.

Vital statistics and tuberculosis, fiscal year 1912—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[1]	Active tuberculosis.[1]	Estimated tuberculosis.
Idaho	3,823	110	127	47	1,685	390	384	1,108
Coeur d'Alene	614	14	21	4	285	6	4	20
Fort Hall	1,814	60	76	26	600	24	20	88
Fort Lapwai	1,395	36	30	17	800	360	360	1,000
Iowa, Sac and Fox	364	13	18	12	100	14	10	36
Kansas	1,317	47	40	11	973	20	14	50
Kickapoo	572	15	21	7	273	10	8	18
Pottawatomi	745	32	19	4	700	10	6	32
Michigan	255	4	6	3	3	0	0	5
Bay Mills	255	4	6	3	3	(2)	(2)	3
Chippewa of Lake Superior	(2)	(2)	(2)	(2)	(2)	(2)	(2)	2
Minnesota	10,843	439	290	96	4,749	172	120	1,813
Fond du Lac	962	45	34	6	80	14	12	26
Grand Portage	316	21	32	2	316	8	6	9
Leech Lake	1,715	52	56	18	736	60	41	538
Nett Lake	646	32	16	3	95	4	2	6
Pipestone	(2)	(2)	(2)	(2)	212	6	2	(2)
Red Lake	1,436	72	52	24	900	20	19	224
Vermillion Lake	(2)	(2)	(2)	(2)	110	10	8	18
White Earth	5,768	217	100	43	2,300	50	30	992
Montana	11,242	433	311	112	4,034	500	376	1,845
Blackfeet	2,816	92	62	17	2,511	274	200	474
Crow	1,731	72	64	13	363	20	19	344
Flathead	2,281	62	52	17	153	15	10	209
Fort Belknap	1,183	58	50	22	600	63	60	163
Fort Peck	1,833	95	46	20	.....	68	48	216
Tongue River	1,398	54	37	23	407	60	39	439
Nebraska	4,182	141	119	10	1,347	19	8	55
Omaha	1,281	45	43	(2)	300	(2)	(2)	(2)
Genoa	350	(2)	(2)	(2)	.....	1	0	25
Santee	1,465	39	37	7	97	10	4	18
Winnebago	1,086	57	39	3	950	8	4	12
Nevada	2,573	78	95	38	1,554	107	57	276
Carson	(2)	(2)	(2)	(2)	318	21	10	11
Fallon	333	10	7	2	102	8	4	36
Fort McDermitt	338	11	19	4	185	8	4	25
Lovelocks	90	(2)	7	3	13	2	1	3
Moapa River	119	3	8	6	(2)	(2)	(2)	14
Nevada	602	14	8	5	186	8	4	23
Walker River	522	16	22	8	350	40	20	100
Western Shoshone	569	24	24	10	400	20	14	64
New Mexico	21,374	580	319	39	2,275	125	91	2,002
Albuquerque Pueblo	4,552	162	93	9	332	28	20	11
Jicarilla	680	23	81	25	415	30	25	78
Mescalero	452	19	19	4	116	6	4	73
Navajo. (See Arizona.)	.....	.....	.....	.....	.....	.....	.....	.....
Pueblo Bonito	2,685	(2)	(2)	(2)	631	26	20	46
San Juan	8,000	(2)	(2)	(2)	125	14	9	1,760
Santa Fe Pueblo	3,416	326	95	1	524	18	12	30
Zuni	1,589	50	31	(2)	132	3	1	4
New York Agency	5,426	101	120	(2)	1,200	(2)	(2)	50
North Carolina Cherokee	2,078	121	58	16	757	15	9	51
North Dakota	8,389	342	210	61	3,086	125	91	413
Fort Berthold	1,148	57	32	9	504	16	9	25
Bismarck	.....	.....	.....	.....	72	3	1	4
Fort Totten	997	58	34	15	(2)	6	5	250
Standing Rock	3,389	101	98	36	750	80	65	107
Turtle Mountain	2,855	126	46	1	1,684	17	10	27
Wahpeton	.....	.....	.....	.....	76	3	1	(2)

[1] Estimated.

[2] Statistics not available.

Vital statistics and tuberculosis, fiscal year 1912—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[1]	Active tuberculosis.[1]	Estimated tuberculosis.
Oklahoma	15,896	613	422	85	3,849	278	191	2,375
Cantonment	765	26	25	.....	600	60	52	112
Cheyenne and Arapaho	1,242	53	45	16	509	40	28	83
Chilocco	.....	.....	.....	.....	536	12	0	12
Kaw	158	0	2	1	18	2	0	.....
Kiowa	4,174	222	129	22	727	90	64	958
Osage	2,036	17	36	.....	107	4	2	170
Otoe	435	25	11	.....	55	24	16	435
Pawnee	658	33	26	3	340	4	3	7
Ponca	639	33	25	3	130	3	2	2
Red Moon	153	4	14	6	51	26	16	42
Sac and Fox	641	30	19	1	150	3	2	5
Seger	579	22	20	12	24	10	6	289
Seneca	1,911	43	16	3	477	(2)	(2)	.....
Shawnee	2,485	105	54	18	125	(2)	(2)	260
Oregon	3,221	117	130	29	1,480	157	84	508
Klamath	1,117	50	53	17	201	14	8	114
Siletz	249	11	16	3	224	8	6	51
Salem	.....	.....	.....	.....	325	45	0	45
Umatilla	1,114	32	16	3	380	30	26	67
Warm Springs	741	24	45	6	350	60	44	231
Pennsylvania, Carlisle	(2)	(2)	(2)	(2)	(2)	(2)	(2)	54
South Dakota	20,333	774	627	241	9,790	1,063	802	3,468
Cheyenne River	2,591	103	124	45	685	250	201	598
Canton Asylum	.....	.....	.....	.....	56	0	0	5
Crow Creek	972	36	67	24	425	30	27	48
Flandreau	280	6	8	1	445	12	0	11
Lower Brule	476	23	14	7	233	28	14	74
Pierre	.....	.....	.....	.....	149	4	0	4
Pine Ridge	6,859	267	221	97	5,109	480	400	1,405
Rapid City	.....	.....	.....	.....	.....	.....	.....	.....
Rosebud	5,297	236	132	40	1,760	200	128	984
Sisseton	2,085	41	15	6	400	19	11	101
Springfield	.....	.....	.....	.....	48	.....	.....	.....
Yankton	1,773	62	46	21	460	40	21	238
Utah	1,309	38	35	11	858	19	11	71
Shiwits	126	3	2	0	109	2	1	3
Uintah and Ouray	1,183	35	33	11	749	17	10	68
Washington	11,740	294	262	99	2,565	86	54	2,028
Colville	2,261	82	64	27	130	7	5	755
Cushman	3,460	39	41	16	310	6	5	15
Neah Bay	727	24	23	7	152	9	7	56
Spokane	849	22	10	4	726	28	16	44
Tulalip	1,397	48	70	24	1,070	6	3	38
Yakima	3,046	79	54	21	177	30	18	1,120
Wisconsin	9,816	344	247	39	3,116	314	221	1,012
Carter	293	37	10	4	22	3	1	32
Hayward	1,252	22	20	4	1,100	95	68	285
Keshena	2,266	77	60	16	891	35	23	81
Lac du Flambeau	709	10	15	5	295	17	11	38
La Pointe	1,185	33	37	8	350	9	7	26
Oneida	2,383	100	45	0	162	17	11	150
Red Cliff	483	19	8	2	326	138	100	339
Tomah	1,243	46	52	0	(2)	(2)	(2)	61
Wyoming, Shoshone	1,697	68	60	7	635	80	57	137

[1] Estimated.

[2] Statistics not available.

Vital statistics and tuberculosis, fiscal year 1913.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[3]	Active tuberculosis.[3]	Estimated tuberculosis.
Arizona	39,505	2,313	1,960	898	10,915	848	574	4,821
Camp Verde	419	11	9	2	200	.....	2	6
Colorado River	486	21	31	17	354	63	42	23
Fort Apache	2,397	89	63	11	462	154	102	1,552
Havasupai	171	11	4	3	165	.....	.....	44
Fort Mohave	820	17	39	21	78	.....	5	10
Kaibab	93	4	4	1	.....	.....	.....	.....
Leupp	1,400	52	26	9	500	28	18	46
Moqui	4,108	266	76	11	1,797	14	9	29
Navajo	10,000	1,200	1,200	600	1,000	66	44	1,100
Pima	4,096	301	201	116	3,233	283	189	645
Rice Station	(1)	(1)	(1)	.....	230	.....	4	4
Salt River	1,214	28	30	11	99	8	6	59
San Carlos	2,362	56	47	10	1,350	9	6	167
Sells	4,907	145	119	49	400	46	30	237
Truxton Canon	482	12	26	6	300	49	32	247
Western Navajo	6,550	100	85	40	741	128	85	652
California	9,563	181	235	69	2,962	82	141	353
Bishop	1,355	11	18	3	108	20	13	68
Campo	217	1	2	.....	152	.....	3	4
Digger	45	2	.....	.....	.....	.....	.....	.....
Fort Bidwell	651	11	19	5	310	22	15	76
Fort Yuma	794	22	31	7	600	19	13	32
Greenville	1,000	5	3	.....	30	.....	10	13
Hoopa Valley	1,251	26	39	20	301	21	14	74
Malki	613	16	13	7	379	.....	16	25
Pala	640	20	21	10	292	.....	16	11
Pechanga	213	2	4	.....	13	.....	.....	.....
Round Valley	1,528	42	39	5	525	.....	15	15
Soboba	412	7	28	4	107	.....	8	4
Tule River	151	6	8	.....	.....	.....	.....	.....
Volcan[2]	693	10	10	8	235	.....	18	31
Colorado	870	43	33	8	358	28	19	46
Navajo Springs	510	29	12	1	178	.....	1	.....
Southern Ute	360	14	21	7	180	28	18	46
Florida, Seminole	600	12	1	1	.....	.....	.....	.....
Idaho	4,089	110	126	50	1,823	141	93	347
Coeur d'Alene	857	14	20	6	279	13	8	16
Fort Hall	1,819	46	70	27	700	20	13	92
Fort Lapwai	1,413	50	36	17	844	108	72	239
Iowa, Sac and Fox	365	14	13	4	215	19	12	72
Kansas	1,345	68	44	.....	790	16	7	39
Kickapoo	590	33	19	.....	90	.....	7	7
Potawatomi	755	35	25	.....	700	16	.....	32
Michigan	1,345	3	4	2	615	.....	6	8
Bay Mills	248	3	4	2	115	.....	2	4
Chippewa, Lake Superior	1,097	.....	.....	.....	500	.....	4	4
Minnesota	11,338	459	234	66	5,631	240	221	1,943
Fond du Lac	978	44	28	4	201	.....	14	14
Grand Portage	309	10	17	5	285	.....	11	6
Leech Lake	1,735	79	35	11	764	70	64	611
Nett Lake	675	32	17	2	450	26	17	72
Pipestone	300	30	10	.....	315	.....	5	5
Red Lake	1,456	68	48	14	963	23	15	222
Vermillion Lake, pupils from Minnesota and Wisconsin	.....	.....	.....	.....	128	.....	15	13
White Earth	5,885	196	79	30	2,525	121	80	1,000
Montana	11,331	401	368	105	4,724	808	558	1,822
Blackfeet	2,842	86	85	17	1,162	299	199	505
Crow	1,693	55	99	21	670	83	55	166
Flathead	2,311	72	37	6	166	.....	19	199
Fort Belknap	1,195	27	26	11	1,000	220	147	250
Fort Peck	1,857	73	50	16	1,076	141	94	296
Tongue River	1,433	88	71	34	650	65	44	406

[1] Under San Carlos. [2] 1912 report. [3] Estimated.

Vital statistics and tuberculosis, fiscal year 1913—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[2]	Active tuberculosis.[2]	Estimated tuberculosis.
Nebraska	3,890	141	80	15	679	20	32	444
Omaha	1,312	72	37	.....	.....	.....	.....	.....
Santee	1,479	30	18	5	564	.....	14	350
Winnebago	1,099	39	25	10	115	20	18	94
Nevada	7,556	224	194	28	1,184	89	106	437
Fallon	415	7	17	5	123	.....	14	41
Fort McDermitt	337	11	15	8	173	36	24	110
Moapa River	113	7	13	7	70	.....	15	35
Nevada	609	10	12	2	358	.....	7	7
Walker River	593	5	10	.....	300	53	36	205
Western Shoshone	579	34	27	.....	160	.....	10	30
Reno	5,000	150	100	.....	.....	.....	.....	.....
New Mexico	21,725	436	328	74	2,928	123	101	2,152
Albuquerque Pueblo	4,653	148	99	20	980	36	24	75
Jicarilla	669	43	51	22	342	42	28	73
Mescalero	632	16	26	3	130	.....	10	20
Pueblo Bonito	2,685	.....	.....	.....	213	.....	8	46
San Juan	8,000	.....	7	7	482	17	9	1,766
Santa Fe Pueblo	3,473	170	113	21	456	28	19	170
Zuni	1,616	59	32	1	325	.....	3	2
North Carolina, Cherokee	2,109	47	16	6	806	.....	13	22
North Dakota	8,538	365	229	94	5,279	289	232	1,115
Fort Berthold	1,168	59	37	8	500	15	10	25
Fort Totten	999	33	46	29	(1)	(1)	15	225
Standing Rock	3,415	129	103	44	2,219	274	183	852
Turtle Mountain	2,956	144	43	13	2,400	.....	13	13
Wahpeton	.....	.....	.....	.....	160	.....	11	.....
Oklahoma	15,165	524	396	91	3,400	196	152	1,551
Cantonment	774	31	22	7	425	14	9	221
Cheyenne and Arapaho	1,247	47	42	14	909	30	20	105
Kiowa	4,214	161	121	27	720	101	67	863
Osage	2,038	19	22	.....	150	16	11	171
Otoe	449	27	13	2	65	.....	8	26
Pawnee	660	20	20	3	365	.....	6	24
Ponca	812	43	30	1	227	.....	2	8
Red Moon	151	5	7	3	41	23	15	42
Sac and Fox	657	30	14	.....	325	.....	6	6
Seger	578	34	22	17	173	12	8	63
Seneca	1,930	22	34	6	.....	.....	.....	.....
Shawnee	1,655	85	49	11	.....	.....	.....	22
Oregon	6,414	129	113	32	1,596	174	114	2,405
Klamath	1,112	39	46	13	486	35	23	34
Roseburg	3,000	.....	.....	.....	.....	.....	.....	2,000
Siletz	429	13	13	2	295	26	17	65
Umatilla	1,124	37	22	9	365	34	22	72
Warm Springs	749	40	32	8	450	79	52	234
South Dakota	20,555	779	558	133	10,294	1,148	791	2,611
Cheyenne River	2,618	100	73	32	1,363	275	183	458
Canton Asylum	.....	.....	.....	.....	57	.....	11	5
Crow Creek	978	55	47	13	600	29	20	65
Flandreau	282	6	5	1	444	.....	16	11
Lower Brule	472	13	17	5	250	23	15	53
Pine Ridge	6,940	292	216	44	4,460	476	317	1,250
Rosebud	5,391	232	138	33	2,200	242	161	465
Sisseton	2,083	33	32	5	500	66	44	243
Yankton	1,791	48	30	.....	420	37	24	61
Utah	1,315	56	65	19	691	20	16	63
Shivwits	130	3	1	.....	111	.....	3	3
Uintah and Ouray	1,185	53	64	19	580	20	13	60

[1] No examination. [2] Estimated.

Vital statistics and tuberculosis, fiscal year 1913—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[1]	Active tuberculosis.[1]	Estimated tuberculosis.
Washington	11,242	248	246	91	2,991	101	93	2,057
Colville	2,285	88	55	31	519	14	9	703
Cushman	3,071	19	48	11	388	.....	18	34
Neah Bay	703	22	26	9	228	.....	8	22
Spokane	637	28	20	4	600	28	19	47
Tulalip	1,494	51	63	19	656	40	27	71
Yakima	3,052	40	34	17	600	19	12	1,120
Wisconsin	9,930	295	196	38	2,870	196	145	630
Carter	291	6	8	3	8	.....	5	22
Hayward	1,252	26	21	3	996	64	42	113
Keshena	2,298	65	41	5	788	29	19	67
Lac du Flambeau	706	18	31	11	210	19	12	31
La Pointe	1,192	45	32	7	510	34	22	99
Oneida	2,422	74	30	7	8	.....	8	150
Red Cliff	501	13	6	2	350	50	37	87
Tomah	1,268	48	27	.....	.....	.....	.....	61
Wyoming, Shoshone	1,715	67	49	19	450	29	19	161

Vital statistics and tuberculosis, fiscal year 1914.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[1]	Active tuberculosis.[1]	Estimated tuberculosis.
Arizona	41,916	2,291	2,067	981	12,568	1,406	937	5,736
Camp Verde	422	17	14	4	250	4	2	6
Colorado River	462	13	29	18	566	25	17	140
Fort Apache	2,483	88	22	11	1,800	411	274	1,325
Fort Mohave	785	16	45	27	400	12	8	100
Havasupai	174	11	4	2	130	2	1	3
Kaibab	96	4	1	1	.....	.....	.....	.....
Leupp	1,432	60	28	.....	459	8	6	145
Moqui	4,133	188	163	26	1,250	28	19	143
Navajo	10,000	1,200	1,200	600	1,500	66	44	1,100
Pima	6,096	301	201	116	3,153	271	181	543
Salt River	1,234	40	30	7	75	7	4	55
San Carlos	2,908	51	49	14	1,193	35	23	122
Sells	4,965	195	179	105	820	406	270	1,275
Truxton Canon	474	7	17	10	350	65	44	127
Western Navajo	6,550	100	85	40	622	66	44	652
California	9,752	206	215	36	4,154	176	116	582
Bishop	1,350	10	16	2	135	23	15	77
Campo	218	3	3	1	99	2	1	2
Digger	51	2	1	.....	2	1	.....	1
Fort Bidwell	733	23	18	4	379	36	24	131
Fort Yuma	786	26	25	4	665	19	13	62
Greenville	1,000	7	7	.....	40	10	7	20
Hoopa Valley	1,365	37	43	9	584	37	24	96
Malki	613	22	15	1	545	3	2	5
Pala	983	14	12	7	538	10	6	15
Round Valley	1,529	26	38	1	120	20	13	153
Sherman	.....	.....	.....	.....	690	7	5	.....
Soboba	974	29	29	4	342	6	4	12
Tule River	150	7	8	3	15	2	2	8
Colorado	864	34	40	3	720	8	5	19
Navajo Springs	504	17	23	1	360	2	1	7
Southern Ute	360	17	17	2	360	6	4	12
Florida, Seminole	562	12	9	.....	154	.....	.....	.....
Idaho	4,106	114	138	50	2,079	158	106	394
Coeur d'Alene	854	19	21	11	450	29	20	69
Fort Hall	1,797	48	70	24	613	24	16	106
Fort Lapwai	1,455	47	47	15	1,016	105	70	219

[1] Estimated.

Vital statistics and tuberculosis, fiscal year 1914—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Iowa, Sac and Fox	368	14	11	.....	125	10	7	.....
Kansas	1,366	69	47	.....	139	1	1	3
Kickapoo	601	20	8	.....	139	1	1	3
Potawatomi	765	49	39	.....	.....	.....	.....	.....
Michigan	1,349	6	2	.....	1,001	8	5	13
Bay Mills	252	6	2	.....	56	1	.....	1
Chippewa, Lake Superior	1,097	.....	.....	.....	570	3	2	5
Mount Pleasant	.....	.....	.....	.....	375	4	3	7
Minnesota	11,532	523	284	62	5,819	241	161	1,608
Fond du Lac	998	50	30	4	299	11	7	18
Grand Portage	312	10	7	1	140	4	3	7
Leech Lake	1,743	74	61	19	762	37	25	326
Nett Lake	624	24	23	.....	450	26	17	72
Pipestone	303	.....	4	2	229	25	17	42
Red Lake	1,482	79	58	19	936	37	25	218
White Earth	6,070	286	101	17	3,003	101	67	925
Montana	11,191	355	330	125	6,346	546	364	1,486
Blackfeet	2,641	49	47	20	2,500	190	126	316
Crow	1,696	69	66	18	985	98	66	202
Flathead	2,305	36	52	14	450	41	28	108
Fort Belknap	1,224	57	53	24	400	16	10	250
Fort Peck	1,904	95	51	15	1,321	93	62	265
Tongue River	1,421	49	61	34	680	108	72	345
Nebraska	3,932	157	123	13	475	19	13	206
Omaha	1,332	74	54	.....	.....	.....	.....	.....
Santee	1,489	45	43	5	351	7	5	186
Winnebago	1,111	38	26	8	124	12	8	20
Nevada	7,691	221	240	22	1,023	69	44	355
Fallon	414	4	16	2	99	7	4	51
Fort McDermitt	342	11	15	10	163	36	24	117
Moapa River	115	6	4	3	20	4	2	10
Nevada	601	9	17	3	275	4	2	16
Walker River	559	22	20	3	58	11	7	108
Western Shoshone	590	19	18	1	408	7	5	53
Reno, special agency	5,070	150	150	.....	.....	.....	.....	.....
New Mexico	21,995	362	308	50	4,674	156	106	2,174
Albuquerque	4,894	159	140	11	850	38	26	86
Jicarilla	659	23	34	14	340	33	22	67
Mescalero	630	17	18	4	257	8	6	23
Pueblo Bonito	2,685	.....	.....	.....	1,154	53	36	750
San Juan	8,000	.....	6	6	472	14	10	1,135
Santa Fe Pueblo	3,525	112	45	13	1,001	8	5	106
Zuni	1,602	51	65	2	600	2	1	7
North Carolina, Cherokee	2,188	92	13	4	455	7	4	28
North Dakota	8,623	305	202	81	7,013	461	308	983
Fort Berthold	1,141	38	46	13	700	16	11	27
Fort Totten	988	42	54	18	600	69	45	114
Standing Rock	3,431	70	54	37	3,213	356	238	796
Turtle Mountain	3,063	155	48	13	2,500	20	14	46
Oklahoma	16,398	736	439	99	4,921	235	158	672
Cantonment	785	35	22	6	450	40	26	82
Cheyenne and Arapaho	1,256	54	46	18	800	27	18	116
Kiowa [2]	4,369	183	151	31	2,400	91	61	152
Osage	2,187	185	36	.....	140	8	6	99
Otoe	432	10	27	1	65	15	10	45
Pawnee	679	48	29	8	452	7	5	25
Ponca	800	30	29	2	137	2	2	4
Red Moon [2]	152	5	3	2	39	23	16	42
Sac and Fox	677	31	11	.....	129	3	2	5
Segar	580	18	16	7	309	19	12	42
Seneca	1,985	53	21	11	.....	.....	.....	.....
Shawnee	2,496	84	48	13	.....	.....	.....	60

[2] Overestimated last year.

[3] 1913 report.

Vital statistics and tuberculosis, fiscal year 1914—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Oregon	11,390	85	130	46	1,933	202	175	2,609
Klamath	1,112	39	46	13	608	40	27	67
Roseburg[2]	8,000							2,000
Siletz	426	6	9	2	325	46	30	166
Umatilla	1,110	18	32	17	450	82	55	207
Warm Springs	742	22	43	14	550	94	63	169
South Dakota	20,732	762	592	103	6,481	691	461	2,280
Cheyenne River	2,691	102	51	23	1,200	193	129	469
Crow Creek	963	28	44	12	800	32	21	65
Flandreau	280	5	7	1	70	1	0	1
Lower Brule	478	21	15	3	200	14	10	51
Pine Ridge	7,059	297	178	.....	1,061	110	74	772
Rosebud[2]	5,391	232	216	44	2,200	242	161	465
Sisseton	2,065	28	46	6	650	44	29	220
Yankton	1,805	49	35	14	300	55	37	246
Utah	1,305	52	63	20	1,042	36	23	66
Shivwits	133	4	1	.....	133	2	1	3
Uintah and Ouray	1,172	48	62	20	909	34	22	63
Washington	11,181	225	243	89	2,652	143	97	1,788
Colville	2,425	80	70	16	533	45	30	285
Cushman	3,051	21	40	15	350	29	20	233
Neah Bay	693	12	34	11	395	8	6	24
Spokane	624	5	16	4	215	17	12	46
Tulalip	1,239	54	48	22	559	25	17	80
Yakima	3,149	53	35	21	600	19	12	1,120
Wisconsin	9,447	201	224	55	3,230	267	178	835
Carter	313	8	11	3	78	6	4	25
Hayward[3]	1,252	26	21	3	996	64	42	113
Keshena	1,721	76	48	7	822	30	20	67
Lac du Flambeau	707	10	14	5	260	29	20	49
La Pointe	1,222	51	44	27	655	107	72	252
Oneida	2,451	71	42	9	29	5	4	225
Red Cliff	507	7	6	1	300	26	16	42
Tomah	1,274	42	38	.....	.....	.....	.....	61
Wyoming, Shoshone	1,705	52	58	.....	891	46	30	143

Vital statistics and tuberculosis, fiscal year 1915.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[6]	Active tuberculosis.[6]	Estimated tuberculosis.
Grand total	205,450	6,542	5,632	1,986	66,729	4,318	2,877	22,834
Arizona	42,336	2,173	2,044	1,047	12,183	724	484	5,282
Camp Verde	421	8	9	2	200	4	3	7
Colorado River	477	14	22	16	680	29	19	168
Fort Apache	2,388	29	221	134	970	209	140	1,465
Fort Mojave	763	10	33	16	655	22	15	37
Havasupai	170	5	15	6	135	8	7	42
Kaibab	98	2	1	1	68	.....	.....	.....
Leupp	1,700	110	34	1	600	1	.....	143
Moqui	4,193	196	59	14	990	14	9	79
Navajo	10,000	1,100	1,100	600	1,500	80	54	1,125
Pima	6,296	[4]310	197	120	3,055	168	112	406
Salt River	1,208	48	45	15	569	16	[4]10	318
San Carlos	[7]2,608	40	83	22	1,265	29	19	225
Sells	4,990	195	124	52	495	23	16	[5]620
Truxton Canon	474	6	16	8	380	73	48	152
Western Navajo	6,550	100	85	40	621	48	32	495

[2] Overestimated last year.
[3] 1913 report.
[4] Underestimated last year.
[5] Estimated; only items reported.
[6] Estimated.
[7] 1914 report.

Vital statistics and tuberculosis, fiscal year 1915—Continued.

States and superintendencies.	Population.	Births	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[6]	Active tuberculosis.[6]	Estimated tuberculosis.
California	9,562	141	164	58	3,097	128	85	498
Bishop	1,345	13	18	8	160	19	13	68
Campo	228	4	4	.....	141	2	1	3
Digger	53	.....	2	1	.....	.....	.....	.....
Fort Bidwell	715	7	25	10	143	3	2	14
Fort Yuma	788	28	14	2	700	8	6	33
Greenville	[7]1,000	[7]7	[7]7	.....	67	1	.....	20
Hoopa Valley	1,245	18	23	9	96	44	30	109
Malki	612	11	18	5	612	9	6	30
Pala	936	13	21	11	424	8	5	13
Round Valley	1,550	13	8	1	145	22	15	156
Soboba	938	20	18	8	604	10	6	26
Tule River	152	7	6	3	5	2	1	26
Colorado	890	28	18	5	766	7	5	30
Southern Ute	366	12	10	4	366	5	4	22
Ute Mountain	524	16	8	1	400	2	1	8
Florida, Seminole	578	20	9	.....	.....	.....	.....	.....
Idaho	4,200	120	138	44	2,243	76	51	265
Coeur d'Alene	834	28	37	10	425	35	24	77
Fort Hall	1,794	37	54	19	688	18	12	116
Fort Lapwai	1,572	55	47	15	1,130	23	15	[4]72
Iowa, Sac and Fox	364	16	18	3	100	11	8	34
Kansas	1,375	45	35	2	143	.....	.....	37
Kickapoo	616	27	11	2	143	.....	.....	5
Potawatomi	759	18	24	.....	.....	.....	.....	[7]32
Michigan	1,347	2	4	3	670	4	2	6
Bay Mills	250	2	4	1	70	2	1	3
Mackinac	1,097	.....	.....	2	600	2	1	3
Minnesota	11,561	469	283	72	4,507	325	216	1,300
Fond du Lac	1,020	34	12	1	297	9	6	15
Grand Portage	318	13	4	2	175	2	2	4
Leech Lake	1,754	78	73	22	648	35	24	[4]103
Nett Lake	625	18	22	.....	141	3	2	.....
Pipestone	[5]141	5	5	1	78	22	14	36
Red Lake	1,486	60	53	19	963	44	29	217
White Earth	6,217	261	114	27	2,205	210	139	925
Montana	11,329	419	290	91	6,625	365	243	1,248
Blackfeet	2,724	123	40	5	3,239	62	42	[4]155
Crow	1,699	56	53	11	694	35	23	125
Flathead	2,302	51	45	17	209	15	10	103
Fort Belknap	1,205	36	33	15	500	24	16	250
Fort Peck	1,943	97	56	12	1,348	111	74	270
Tongue River	1,456	56	63	31	635	118	78	345
Nebraska	3,917	143	158	24	975	67	45	351
Omaha	1,313	75	94	.....	.....	.....	.....	.....
Santee	1,508	43	26	9	425	32	21	141
Winnebago	1,096	25	38	15	550	35	24	[5]210
Nevada	7,819	212	202	24	1,468	64	42	384
Fallon	437	13	10	4	170	7	5	43
Fort McDermitt	344	5	8	4	168	36	24	117
Moapa River	123	7	7	1	40	4	2	12
Nevada	606	13	8	3	410	5	3	19
Walker River	707	10	17	4	180	7	5	108
Western Shoshone	602	14	22	8	500	5	3	85
Reno	5,000	150	130	.....	.....	.....	.....	.....
New Mexico	22,007	290	287	37	4,283	185	123	1,791
Jicarilla	642	19	8	15	370	26	17	70
Mescalero	626	17	20	5	194	18	12	40
Pueblo Bonito	2,715	.....	.....	.....	1,035	10	7	[5]17
Pueblo day schools	8,421	200	217	14	2,013	98	65	361
San Juan	8,000	.....	.....	.....	445	31	21	800
Zuni	1,603	54	42	3	226	2	1	3

[4] Overestimated last year.
[5] Underestimated last year.
[6] Estimated.
[7] 1914 report.

Vital statistics and tuberculosis, fiscal year 1915—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.[4]	Active tuberculosis.[6]	Estimated tuberculosis.
New York, New York Agency	5,825	93	76	.....	.....	.....	.....	.....
North Carolina, Cherokee	2,211	38	29	13	450	12	9	43
North Dakota	8,710	222	151	59	6,206	579	386	1,026
Fort Berthold	1,154	51	45	14	225	14	9	23
Fort Totten	999	35	25	6	1,036	41	27	130
Standing Rock	3,434	30	35	26	3,185	478	319	796
Turtle Mountain	3,123	106	46	13	1,760	46	31	77
Oklahoma	16,444	609	434	83	3,903	152	102	1,060
Cantonment	782	24	27	10	455	[7]40	[7]26	[5]365
Cheyenne and Arapaho	1,253	44	47	11	900	32	22	133
Kiowa	4,410	222	163	33	1,700	22	14	116
Osage	2,195	32	25	.....	125	5	4	99
Otoe	476	39	11	.....	74	6	4	48
Pawnee	679	30	31	3	174	13	9	48
Ponca	1,010	55	33	6	135	4	3	[2]54
Red Moon	155	7	5	2	50	14	9	34
Sac and Fox	687	22	12	.....	115	3	2	5
Seger	593	30	18	5	268	9	6	[2]100
Seneca	1,605	[3]19	[3]10	[3]1	(1)	(1)	(1)	(1)
Shawnee	2,599	85	52	12	7	4	3	58
Oregon	11,481	102	71	28	1,774	169	112	2,507
Klamath	1,145	37	15	5	631	33	22	55
Roseburg	8,000	.....	.....	.....	.....	.....	.....	2,000
Siletz	425	13	14	4	338	8	5	[4]65
Umatilla	1,152	25	21	9	455	44	30	206
Warm Springs	759	27	21	10	350	84	55	181
South Dakota	21,082	801	688	219	9,046	884	587	3,804
Cheyenne River	2,708	99	91	44	1,957	220	147	680
Crow Creek	955	36	40	20	725	50	33	105
Flandreau	282	5	3	1	50	1	0	12
Lower Brule	481	15	4	.....	90	15	10	[5]108
Pine Ridge	7,240	264	209	59	3,900	292	194	[5]1,710
Rosebud	5,519	307	260	65	1,574	230	153	482
Sisseton	2,053	31	43	20	350	22	14	401
Yankton	1,844	44	38	10	400	54	36	308
Utah	1,794	50	65	16	740	49	32	114
Shiwits	133	5	5	.....	100	2	0	2
Uintah and Ouray	1,161	34	49	16	640	47	32	[5]112
Salt Lake	500	11	11	.....	.....	.....	.....	.....
Washington	9,630	259	207	121	3,297	154	102	1,673
Colville	2,468	120	74	76	1,371	78	52	210
Cushman	630	25	18	5	2	2	0	57
Neah Bay	709	20	15	8	354	8	5	32
Spokane	611	11	16	4	200	.....	.....	48
Taholah	800	4	8	4	234	3	2	8
Tulalip	1,273	51	44	20	436	16	11	140
Yakima	3,146	28	32	4	700	47	32	1,228
Wisconsin	9,283	224	187	37	3,159	278	186	870
Carter	309	4	8	4	157	11	8	43
Hayward	1,259	20	13	3	646	33	22	200
Keshena	1,730	52	43	10	851	41	28	110
Lac du Flambeau	706	13	14	7	230	25	17	42
La Pointe	1,040	38	29	7	898	78	52	175
Oneida	2,491	78	38	4	30	8	5	225
Red Cliff	505	6	8	2	347	45	30	75
Tomah	1,243	13	34	.....	.....	37	24	.....
Wyoming, Shoshone	1,705	66	74	.....	1,094	85	57	[5]511

[1] Unknown.
[2] Underestimated.
[3] Records incomplete.
[4] Overestimated last year.
[5] Underestimated last year.
[6] Estimated.
[7] 1914 Report.

Vital statistics and tuberculosis, fiscal year 1916.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Grand total	209,224	6,092	4,570	1,347	71,685	4,393	4,302	23,564
Arizona	44,436	1,428	952	361	11,625	611	420	5,353
Camp Verde	416	14	4	1	135	2	1	3
Colorado River [1]	1,215	31	44	23	724	84	26	157
Fort Apache	2,384	137	117	34	325	54	29	1,465
Havasupai	170	10	9	3	142	48	7	74
Kaibab	95	3	2	.....	74	.....	.....	.....
Leupp	1,761	98	37	1	700	.....	12	155
Moqui	4,203	86	56	9	612	81	30	360
Navajo	11,915	[2]370	[2]190	[2]24	1,760	75	60	1,060
Pima	6,253	279	194	121	2,535	130	101	470
Salt River	1,222	21	34	11	1,222	32	11	119
San Carlos	2,670	64	83	36	1,468	15	10	225
Selis	5,112	205	83	51	574	15	24	637
Truxton Canon	470	10	14	7	376	75	32	133
Western Navajo	6,550	[2]100	[2]85	40	978	.....	77	495
California	10,335	184	154	40	3,109	127	82	791
Bishop	1,568	25	14	4	215	5	17	[2]68
Campo	227	1	2	.....	135	2	.....	2
Digger	293	3	4	.....	17	1	2	6
Fort Bidwell	797	4	3	.....	30	1	2	3
Fort Yuma	813	39	14	1	700	10	2	16
Greenville	624	12	6	1	121	4	4	12
Hoopa Valley	1,290	19	11	7	280	43	21	450
Malki	609	16	31	10	339	15	13	28
Pala	1,017	19	17	6	485	7	6	38
Round Valley	1,716	23	15	3	135	29	8	111
Soboba	935	13	23	7	582	5	7	20
Tule River	446	10	14	1	70	5	.....	37
Colorado	898	28	25	5	715	6	16	37
Southern Ute	365	7	8	1	365	6	5	20
Ute Mountain	533	21	17	4	350	.....	11	17
Florida, Seminole	574	11	4	.....	7	.....	.....	.....
Idaho	4,162	107	133	44	2,444	38	85	339
Coeur d'Alene	840	27	19	11	435	3	37	66
Fort Hall	1,771	56	70	22	869	.....	23	118
Fort Lapwai	1,551	24	44	11	1,140	35	25	155
Iowa, Sac and Fox	363	14	15	4	115	.....	15	25
Kansas	1,415	68	26	6	186	3	2	38
Kickapoo	630	25	9	4	79	.....	.....	6
Potawatomi	785	43	17	2	107	3	2	[2]32
Michigan	1,347	2	4	1	670	3	4	7
Bay Mills [3]	250	2	4	1	70	2	1	3
Mackinac	1,097	(5)	(5)	(5)	600	1	3	4
Minnesota	11,758	503	311	85	4,699	152	305	1,067
Fond du Lac	1,050	52	21	6	443	.....	40	40
Grand Portage	319	8	8	4	145	4	3	8
Leech Lake	1,758	76	58	23	718	33	15	111
Nett Lake	625	21	15	4	58	3	12	15
Pipestone	[4]160	4	7	5	68	17	14	31
Red Lake	1,503	80	66	21	655	20	36	217
White Earth	6,313	262	136	22	2,612	75	185	645
Montana	11,450	433	322	109	5,655	493	277	1,668
Blackfeet	2,743	73	54	15	1,702	43	79	400
Crow	1,707	70	62	15	1,039	119	28	147
Flathead	2,343	70	44	13	266	49	12	101
Fort Belknap	1,211	58	52	21	500	[2]22	[2]18	250
Fort Peck	1,985	103	56	18	[2]1,348	[2]100	[2]85	[2]270
Tongue River	1,461	59	54	27	800	160	55	500

[1] Includes Fort Mohave.
[2] Estimated.
[3] 1915 report.
[4] Does not include pupils at Pipestone School.
[5] No record.

Vital statistics and tuberculosis, fiscal year 1916—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Nebraska	3,941	140	119	14	755	47	33	278
Omaha	1,331	62	44	.....	.....	.....	.....	.....
Santee	1,511	39	35	9	450	37	14	132
Winnebago	1,099	39	40	5	305	10	19	146
Nevada	7,915	211	210	16	1,515	82	48	402
Fallon	439	[2]8	9	.....	.....	.....	.....	.....
Fort McDermitt	341	11	13	2	160	51	7	124
Moapa River	119	4	8	5	42	7	5	17
Nevada	600	10	15	5	250	.....	18	28
Walker River	712	8	9	.....	180	5	3	[3]108
Western Shoshone	604	20	16	4	500	.....	8	87
Reno	5,100	150	140	.....	70	.....	.....	.....
New Mexico	20,819	356	325	57	7,980	341	232	2,443
Jicarilla	642	23	23	13	401	9	34	43
Mescalero	630	17	27	6	445	13	14	29
Pueblo Bonito	2,724	.....	.....	.....	1,150	13	17	338
Pueblo day schools	8,535	258	230	28	3,499	67	94	712
San Juan	6,483	[3]10	[6]15	[6]9	2,225	235	73	[6]1,297
Zuni	1,805	48	30	1	300	4	.....	24
New York, New York agency	5,885	118	98	.....	.....	.....	.....	.....
North Carolina, Cherokee	2,260	88	34	6	263	.....	7	20
North Dakota	8,887	282	160	65	6,452	503	526	1,093
Fort Berthold	1,182	57	30	12	425	42	17	59
Fort Totten	1,004	51	45	16	1,292	45	88	133
Standing Rock [5]	3,484	30	35	26	3,185	400	397	796
Turtle Mountain	3,217	144	50	11	1,550	16	24	105
Oklahoma	16,873	535	355	68	4,934	130	236	1,039
Cantonment	784	36	33	8	500	.....	77	165
Cheyenne and Arapaho	1,263	48	38	10	782	24	24	148
Kiowa	4,514	190	114	22	2,338	75	88	296
Osage	2,195	25	28	12	130	.....	5	98
Otoe	492	28	15	.....	70	2	.....	49
Pawnee	893	43	21	2	80	1	1	50
Ponca	1,036	43	29	5	496	7	7	54
Red Moon	167	8	2	.....	55	.....	18	55
Sac and Fox	679	23	32	1	223	5	1	6
Segar	595	19	10	2	287	[3]12	[3]13	100
Seneca	1,657	48	16	.....	.....	.....	.....	.....
Shawnee [5]	2,798	24	17	6	3	4	2	18
Oregon	11,544	84	91	41	1,457	132	84	1,464
Klamath	1,152	37	31	7	712	[3]33	[3]33	66
Roseburg	8,000	.....	.....	8	53	[3]6	[3]6	1,000
Siletz	416	5	15	4	230	.....	4	72
Umatilla	1,151	16	18	8	190	50	13	93
Warm Springs	825	26	27	14	275	43	28	233
South Dakota	21,237	831	671	309	11,766	1,376	1,131	4,039
Cheyenne River	2,741	113	73	38	2,176	460	240	1,000
Crow Creek	960	33	28	21	745	63	23	126
Flandreau	289	14	7	2	55	.....	2	[3]12
Lower Brule	497	23	13	3	155	26	36	113
Pine Ridge	7,288	253	205	121	5,660	543	512	1,569
Rosebud	5,521	264	202	80	1,637	[3]255	[3]250	797
Sisseton	2,065	66	50	11	800	4	31	117
Yankton	1,876	65	33	33	538	25	37	305
Utah	1,799	56	56	8	843	18	28	92
Shiwwits	135	5	3	1	47	.....	4	7
Uintah and Ouray	1,164	44	41	7	560	18	24	82
Salt Lake	500	7	12	.....	236	.....	.....	3

[2] Estimated.
[3] 1915 report.
[5] Partly reported.
[6] Increase due to greater number examined.

Vital statistics and tuberculosis, fiscal year 1916—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Washington	9,645	277	231	65	3,297	176	476	1,977
Colville	2,526	108	52	14	870	.....	254	360
Cushman	639	22	13	3	370	20	43	121
Neah Bay	698	19	22	7	387	13	7	23
Spokane	616	7	18	7	350	16	28	120
Taholah	743	10	11	1	77	1	3	5
Tulalip	1,335	57	47	14	443	3	19	118
Yakima	3,086	54	68	19	800	123	122	1,230
Wisconsin	9,997	271	190	43	2,643	124	263	817
Grand Rapids	1,242	23	24	.....	20	2	4	71
Hayward	1,254	20	25	7	583	.....	45	147
Keshena	2,342	61	48	9	664	.....	119	119
Lac du Flambeau	737	17	12	6	197	20	17	37
Laona	316	13	17	5	175	13	4	39
La Pointe	1,042	34	32	10	800	50	64	135
Oneida	2,550	92	30	5	39	3	2	225
Red Cliff	514	11	2	1	166	36	8	44
Wyoming, Shoshone	1,684	65	84	.....	555	31	32	575

Vital statistics and tuberculosis, fiscal year 1917.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Grand total	207,903	5,340	4,594	1,210	83,882	6,775	6,032	27,791
Arizona	44,617	1,249	746	311	13,953	711	710	5,233
Camp Verde	439	13	16	2	125	2	2	4
Colorado River	1,207	26	39	25	489	3	31	160
Fort Apache	2,609	313	88	19	943	321	234	1,225
Havasupai	173	3	4	.....	42	9	3	24
Kaibab	95	3	3	2	35	1	3	4
Leupp	1,556	79	33	2	728	.....	9	164
Moqui	4,200	[3]115	[3]72	8	1,665	31	82	450
Navajo	12,080	(5)	(5)	(5)	2,525	78	72	1,060
Pima [5]	6,253	279	194	121	2,535	130	101	470
Salt River	1,202	44	30	8	1,232	30	14	79
San Carlos	2,659	61	90	17	[3]1,468	[3]15	[3]10	[3]225
Selis	5,112	201	66	53	585	15	24	637
Truxton Canon	457	12	26	14	390	76	49	181
Western Navajo	6,565	100	85	40	1,191	.....	76	550
California	10,362	167	168	54	3,890	53	95	607
Bishop	1,600	15	14	2	200	2	11	256
Campo	233	5	3	.....	134	2	.....	2
Digger	299	7	2	1	22	.....	1	2
Fort Bidwell	756	6	7	5	150	5	15	41
Fort Yuma	833	38	18	3	824	5	2	7
Greenville	629	19	11	7	135	2	5	10
Hoopa Valley	1,299	25	24	11	300	12	26	142
Malki	629	9	13	2	200	8	9	18
Pala	1,023	14	20	8	523	.....	15	40
Round Valley	1,700	10	20	4	500	4	4	39
Soboba	921	11	22	9	602	8	7	13
Tule River	440	8	14	2	300	5	.....	37
Colorado	898	30	31	7	679	5	12	28
Southern Ute	372	18	11	1	241	5	3	8
Ute Mountain	526	12	20	6	438	.....	9	20
Florida, Seminole	586	6	6	.....	11	.....	.....	.....

[3] 1916 report.
[5] Partly reported.
[6] Not reported.

Vital statistics and tuberculosis, fiscal year 1917—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Idaho	4,168	121	177	60	2,673	40	101	344
Coeur d'Alene	826	26	36	15	610	7	34	66
Fort Hall	1,769	44	96	29	843	.....	45	134
Fort Lapwai	1,573	51	45	16	1,220	33	22	144
Iowa, Sac and Fox	360	17	5	4	135	.....	21	37
Kansas	1,421	38	34	9	515	3	12	6
Kickapoo	640	24	16	3	184	2	4	6
Potawatomi	781	14	18	6	331	1	8	.....
Michigan, Mackinac	1,097	(1)	(1)	(1)	500	1	3	4
Minnesota	11,777	333	295	77	7,917	174	293	1,944
Fond du Lac	1,056	33	26	4	500	16	28	85
Grand Portage	321	11	9	.....	175	7	1	8
Leech Lake	1,770	56	41	16	974	16	15	39
Nett Lake	607	11	15	5	53	6	10	16
Pipestone	160	4	4	2	71	19	6	32
Red Lake	1,492	62	72	22	665	22	41	228
White Earth	6,371	156	128	28	5,479	88	192	[4] 1,536
Montana	11,525	360	325	88	5,793	355	451	1,588
Blackfeet	2,752	94	85	14	1,818	53	70	395
Crow	1,710	58	55	13	1,060	113	22	135
Flathead	2,410	57	45	12	250	39	8	99
Fort Belknap	1,206	32	32	11	475	.....	25	240
Fort Peck	1,998	47	43	17	1,290	.....	280	258
Tongue River	1,461	72	65	21	900	150	46	461
Nebraska	3,617	128	130	16	1,765	68	39	188
Omaha	1,318	66	79	(1)	(1)	(1)	(1)	(1)
Santee [3]	1,194	30	25	12	465	25	10	84
Winnebago	1,105	32	26	4	1,300	43	29	104
Nevada	7,944	224	212	21	1,076	77	58	265
Fallon	429	11	10	5	289	18	7	36
Fort McDermitt	350	7	5	1	[2] 160	[2] 51	[2] 7	123
Moapa River	120	5	4	3	38	6	5	18
Nevada	614	10	16	4	270	.....	13	25
Walker River	706	17	20	6	105	.....	12	18
Western Shoshone	625	14	7	2	214	2	14	45
Reno	5,100	160	150	(1)	(1)	(1)	(1)	(1)
New Mexico	20,853	421	352	80	13,656	2,727	1,682	4,858
Jicarilla	645	35	32	16	413	15	32	66
Mescalero	627	24	20	5	381	.....	24	24
Pueblo Bonito	2,724	(3)	(1)	(1)	1,500	21	33	446
Pueblo day schools	8,700	280	223	32	3,312	44	83	219
San Juan	6,354	[2] 25	[2] 38	[2] 26	7,500	2,644	1,508	4,098
Zuni	1,803	57	39	1	550	3	2	5
New York, New York agency	5,912	81	87	(1)	(1)	(1)	(1)	(1)
North Carolina, Cherokee	2,282	50	42	14	415	.....	13	26
North Dakota	8,903	237	186	62	4,580	216	457	1,316
Fort Berthold [3]	1,182	[5] 55	[5] 48	12	425	42	17	59
Fort Totten	1,002	48	47	20	1,300	44	82	245
Standing Rock	3,455	36	40	21	1,550	121	327	879
Turtle Mountain	3,264	98	51	9	1,305	9	31	133
Oklahoma	14,913	488	378	58	4,732	114	496	2,273
Cantonment	785	25	23	7	244	14	18	32
Cheyenne and Arapaho	1,252	42	53	16	860	2	51	150
Kiowa	4,554	189	140	8	2,234	89	191	1,470
Osage	2,180	7	25	8	125	.....	3	90

[1] No record.
[2] 1916 report.
[3] Partly reported.
[4] Increase due to larger number examined.
[5] 1917 report.

Vital statistics and tuberculosis, fiscal year 1917—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Oklahoma—Continued.								
Otoe	518	40	18	2	38	2	.....	51
Pawnee	714	38	17	.....	104	1	3	42
Ponca	1,045	51	38	4	417	1	9	22
Sac and Fox	682	24	15	1	170	5	1	6
Seger	758	28	28	10	540	.....	220	395
Seneca	1,668	20	5	.....	(1)	(1)	(1)	(1)
Shawnee [3]	757	24	16	2	(1)	(1)	(1)	15
Oregon	11,612	112	91	16	1,322	95	51	1,308
Klamath	1,160	46	38	3	457	17	7	37
Roseburg	8,000	(1)	(1)	(1)	.....	(1)	(1)	1,000
Siletz	437	13	10	3	235	5	5	35
Umatilla	1,197	36	26	6	350	40	15	74
Warm Springs	818	17	17	4	280	33	24	162
South Dakota	21,246	635	634	194	12,785	1,572	910	4,344
Cheyenne River	2,752	94	83	39	2,460	575	125	950
Crow Creek	964	38	35	19	379	71	22	180
Flandreau	291	11	9	.....	50	.....	2	2
Lower Brule	504	16	9	2	135	26	27	69
Pine Ridge	7,247	302	242	57	5,750	830	456	1,727
Rosebud	5,636	87	155	57	1,360	20	82	1,255
Sisseton	1,954	43	60	13	800	50	26	55
Yankton	1,898	44	41	7	1,852	.....	170	106
Utah	1,438	48	63	14	845	24	34	78
Goshute	153	3	8	1	153	.....	1	.....
Shivwits	130	3	4	.....	20	.....	3	7
Uintah and Ouray	1,155	42	51	13	672	24	30	71
Washington	11,088	252	307	82	2,566	131	383	1,650
Colville	2,529	63	85	11	833	.....	245	361
Cushman	2,132	30	25	10	(1)	(1)	(1)	8
Neah Bay	697	18	25	7	436	8	6	17
Spokane	603	14	21	10	275	4	8	13
Tahola	788	15	14	5	110	1	5	6
Tulalip	1,359	52	53	20	362	25	18	125
Yakima	3,000	60	84	19	550	93	101	1,120
Wisconsin	9,610	240	210	43	3,203	359	180	1,109
Grand Rapids	1,372	39	29	5	15	.....	6	92
Hayward	1,277	19	32	9	1,010	189	42	320
Keshena	1,745	53	46	13	1,006	14	67	122
Lac du Flambeau	749	20	17	5	157	18	15	41
Laona	335	16	8	1	95	13	4	38
La Pointe	1,046	28	24	9	654	94	28	230
Oneida	2,575	65	41	1	64	.....	8	225
Red Cliff	511	.....	3	.....	202	31	10	41
Wyoming, Shoshone	1,674	103	115	(1)	870	50	31	585

[1] No record.
[3] Partly reported.

Vital statistics and tuberculosis, fiscal year 1918.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Grand total	205,249	5,571	4,682	1,266	64,272	3,067	3,941	23,021
Arizona	44,499	990	743	237	10,797	300	461	3,627
Camp Verde	435	16	20	2	117	2	3	6
Colorado River	1,184	21	52	14	763	.....	47	290
Fort Apache	2,456	120	54	8	1,202	.....	70	270
Havasupai	171	4	6	.....	21	1	1	6
Kaibab	102	8	4	.....	22	.....	2	2
Leupp	1,441	[1] 75	[1] 95	7	360	.....	11	184
Moqui	4,225	80	65	13	502	.....	6	456
Navajo [3]	12,080	(2)	(2)	(2)	2,525	78	72	1,060

[1] Estimated.
[2] No report.
[3] 1917 report.

Vital statistics and tuberculosis, fiscal year 1918—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis
Arizona—Continued.								
Pima[3]	6,253	279	194	121	2,535	130	101	470
Salt River	1,277	46	23	4	266	22	17	83
San Carlos	2,623	24	60	(5)	(5)	(5)	(5)	(5)
Sells	5,237	200	75	25	1,050	27	28	128
Truxton Canon	450	7	10	3	243	40	27	122
Western Navajo	6,565	100	85	40	1,191	.....	76	550
California	10,725	201	243	69	3,975	63	115	337
Bishop	1,588	15	27	7	562	9	19	76
Campo	229	1	8	.....	120	.....	.....	.....
Digger	299	6	6	1	13	1	2	9
Fort Bidwell	750	12	9	3	311	.....	29	62
Fort Yuma	835	17	15	3	835	14	4	18
Greenville	693	21	35	16	181	8	9	24
Hoopa Valley	1,485	21	31	15	250	5	29	46
Malki	634	16	20	5	92	5	3	13
Pala	1,025	25	27	15	320	9	10	33
Round Valley	1,818	35	38	2	500	.....	5	5
Soboba	926	12	10	1	461	7	5	14
Tule River	443	20	17	2	330	5	.....	37
Colorado	877	17	33	4	588	2	12	26
Southern Ute	369	9	15	.....	150	2	3	6
Ute Mountain	508	8	18	4	[3] 438	.....	[3] 9	[3] 20
Florida, Seminole	585	7	7	.....	.....	.....	.....	2
Idaho	4,144	103	138	48	2,443	47	81	324
Coeur d'Alene	829	31	28	6	270	20	11	31
Fort Hall	1,764	48	68	23	622	.....	55	164
Fort Lapwai	1,551	24	42	19	1,551	27	15	129
Iowa, Sac and Fox	356	13	17	2	42	.....	8	40
Kansas	1,414	34	42	8	411	1	8	6
Kickapoo	637	16	16	1	80	.....	.....	6
Potawatomi	777	18	26	7	[3] 331	[3] 1	[3] 8	.....
Michigan, Mackinac[4]	1,097	.....	.....	.....	500	1	3	4
Minnesota	12,003	519	297	74	4,052	207	233	2,234
Fond du Lac	1,067	44	31	7	540	15	44	104
Grand Portage[3]	321	11	9	.....	175	7	1	8
Leech Lake	1,736	66	46	13	1,023	35	14	108
Nett Lake	614	26	24	13	56	5	10	15
Pipestone	164	7	3	2	63	22	9	31
Red Lake	1,496	61	64	22	448	56	40	432
White Earth	6,555	304	120	17	1,747	67	115	1,536
Montana	12,079	400	347	125	5,933	562	306	1,987
Blackfeet	2,773	96	82	18	1,920	48	65	247
Crow	1,703	64	71	12	1,080	101	42	203
Flathead	2,426	43	41	18	[3] 250	[3] 39	[3] 8	[3] 99
Fort Belknap	1,208	39	31	14	410	35	21	381
Fort Peck	2,039	98	65	24	813	[1] 125	[1] 95	480
Rocky Boys Agency	460	11	8	3	460	.....	6	6
Tongue River	1,470	49	49	36	995	214	69	571
Nebraska	2,463	57	69	10	1,368	.....	38	125
Omaha	1,377	36	18	5	(5)	(5)	(5)	(5)
Winnebago	1,086	21	51	5	1,368	.....	38	125
Nevada	10,854	231	246	29	1,053	48	31	245
Fallon	420	6	14	4	278	20	7	41
Fort McDermitt	349	9	17	9	(5)	(5)	(5)	100
Moapa River	113	3	10	4	35	6	5	14
Nevada	561	18	16	4	320	10	11	26
Walker River	804	18	28	5	164	.....	7	22
Western Shoshone	607	17	11	3	256	12	1	42
Reno	8,000	160	150	(5)	(5)	(5)	(5)	(5)

[1] Estimated. [2] No report. [3] 1917 report. [4] Partly reported. [5] No record.

Vital statistics and tuberculosis, fiscal year 1918—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
New Mexico	21,186	592	461	107	6,255	222	228	3,114
Jicarilla	621	17	41	13	465	40	68	151
Mescalero	330	18	17	10	138	12	18	232
Pueblo Bonito	2,724	(5)	(5)	(5)	1,500	.....	34	257
Pueblo day schools	8,836	276	181	42	2,702	115	94	335
San Juan	6,500	218	180	40	700	55	10	2,134
Zuni	1,815	63	42	2	750	.....	4	5
New York, New York Agency	5,982	110	101	(5)	(5)	(5)	(5)	(5)
North Carolina, Cherokee	2,343	50	41	11	322	.....	5	20
North Dakota	8,940	211	187	83	3,758	205	473	1,288
Fort Berthold	1,204	67	55	29	208	14	13	27
Fort Totten	983	28	46	24	550	70	105	300
Standing Rock[3]	3,455	36	40	21	1,550	121	327	879
Turtle Mountain	3,298	80	46	9	1,450	.....	28	82
Oklahoma	14,988	540	441	90	4,582	134	389	2,046
Cantonment	780	28	33	9	235	.....	49	164
Cheyenne and Arapaho	1,252	53	53	19	200	17	.....	55
Kiowa	4,583	210	178	39	2,729	104	155	1,320
Osage	2,186	25	19	3	128	.....	3	90
Otoe	534	31	24	.....	71	2	6	32
Pawnee	716	27	25	2	116	2	2	36
Ponca	1,060	61	48	7	300	2	6	25
Sac and Fox	683	12	11	.....	178	7	.....	7
Seger	747	22	26	7	625	.....	168	286
Seneca	1,707	47	8	2	(5)	(5)	(5)	(5)
Shawnee[4]	750	24	16	2	(6)	.....	.....	.....
Oregon	3,657	109	103	13	1,071	54	26	276
Klamath[3]	1,160	46	38	3	457	17	7	37
Siletz	446	18	14	1	200	3	3	16
Umatilla	1,229	26	29	5	325	34	13	73
Warm Springs	822	19	22	4	89	.....	3	150
South Dakota	22,879	735	611	203	10,198	753	978	3,644
Cheyenne River	2,845	172	77	35	2,018	106	59	368
Crow Creek	970	45	38	20	175	52	23	140
Flandreau	293	7	5	2	456	20	14	33
Lower Brule	513	26	18	2	275	26	29	71
Pine Ridge	7,340	241	148	57	3,304	463	501	1,510
Rosebud	5,521	82	197	65	2,265	26	125	1,295
Sisseton	2,280	57	59	4	800	60	27	137
Yankton	3,117	105	69	18	905	.....	200	90
Utah	1,704	69	69	19	652	15	28	109
Goshute	423	12	13	8	13	.....	2	42
Shivwits	119	1	12	2	59	.....	1	6
Uintah and Ouray	1,162	56	44	9	580	14	25	61
Washington	11,062	233	235	77	2,701	130	279	1,719
Colville	2,566	54	54	18	1,025	.....	111	403
Cushman	2,143	26	26	5	26	.....	.....	56
Neah Bay	682	22	24	7	418	10	9	27
Spokane	604	18	17	6	100	2	21	23
Taholah	734	12	8	3	125	.....	5	5
Tulalip	1,353	46	51	14	432	25	32	85
Yakima	3,000	55	55	24	575	93	101	1,120
Wisconsin	9,696	293	216	57	2,701	273	208	1,263
Grand Rapids[3]	1,372	39	29	5	15	.....	6	92
Hayward	1,276	41	41	21	350	112	45	310
Keshena	1,758	64	64	20	976	16	82	213
Lac du Flambeau	744	14	16	5	249	5	29	101
Laona	355	29	9	1	65	13	3	37
La Pointe	1,054	26	18	3	627	100	28	250
Oneida	2,610	69	34	2	144	.....	7	225
Red Cliff	527	11	5	.....	275	27	8	33
Wyoming, Shoshone	1,696	57	35	.....	870	50	31	585

[3] 1917 report. [4] Partly reported. [5] No record. [6] No physician.

Vital statistics and tuberculosis, fiscal year 1919.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Grand total	205,468	6,344	[1] 9,462	1,330	62,756	2,829	3,293	24,278
Arizona	42,346	1,408	2,254	244	11,702	136	430	2,902
Camp Verde	436	10	18	.....	135	2	3	7
Colorado River	1,141	32	80	26	1,096	33	147	570
Fort Apache	2,466	81	80	12	1,279	.....	28	160
Havasupai	176	9	9	3	.....	.....	.....	.....
Kaibab	105	4	2	.....	16	.....	1	1
Leupp	1,441	65	65	7	110	.....	8	184
Moqui	4,000	[4] 120	215	17	814	.....	8	.....
Navajo	11,280	[4] 386	720	.....	2,500	50	50	1,060
Pima	6,290	[4] 180	308	86	775	16	25	126
Salt River	1,274	45	59	4	376	22	9	66
San Carlos	2,515	[4] 72	200	7	527	13	25	38
Sells	4,465	200	170	30	2,722	.....	26	90
Truxton Canon	427	[4] 14	28	2	.....	.....	.....	.....
Western Navajo	6,360	[4] 190	300	50	1,350	.....	100	600
California	13,215	348	433	63	4,471	87	67	526
Bishop	1,518	10	32	1	750	3	6	58
Campo	229	4	4	.....	107	.....	.....	.....
Digger	280	2	23	3	20	.....	1	6
Fort Bidwell	719	16	31	11	394	3	5	57
Fort Yuma	968	41	51	6	828	12	16	29
Greenville	2,924	126	123	17	190	8	6	220
Hoopa Valley	1,712	17	29	10	350	18	20	50
Malki	628	14	22	1	180	2	1	14
Pala	1,054	43	35	9	386	19	7	45
Round Valley	1,942	53	32	3	500	4	.....	4
Soboba	896	12	39	1	436	5	5	6
Tule River	445	10	12	1	330	13	.....	37
Colorado	821	18	89	10	120	16	4	26
Southern Ute	341	7	42	1	120	16	4	26
Ute Mountain	480	11	47	9	.....	.....	.....	.....
Florida, Seminole	573	1	13	3	.....	3	.....	3
Idaho	4,066	120	204	37	1,922	26	76	335
Coeur d'Alene	818	33	44	1	450	13	20	69
Fort Hall	1,759	59	83	24	783	.....	45	188
Fort Lapwai	1,489	28	77	12	689	13	11	78
Iowa, Sac and Fox	358	13	26	6	70	.....	5	5
Kansas	1,441	54	29	5	90	.....	.....	6
Kickapoo	660	31	11	2	90	.....	.....	6
Potawatomi	781	23	18	3	(2)	.....	.....	(2)
Michigan, Mackinac	1,095	30	25	1	.....	.....	2	90
Minnesota	12,447	423	321	128	2,273	185	214	2,227
Fond du Lac	1,074	37	27	.....	.....	.....	.....	104
Grand Portage	340	10	8	.....	155	3	2	7
Leech Lake	1,738	52	91	61	1,412	88	68	173
Nett Lake	590	20	43	28	.....	.....	.....	14
Pipestone	407	3	4	2	237	6	7	3
Red Lake	1,504	59	47	19	469	21	22	390
White Earth	6,794	242	101	18	.....	[3] 67	[3] 115	[3] 1,536
Montana	12,138	398	530	101	4,641	285	195	1,506
Blackfeet	2,883	[3] 96	[3] 82	[3] 18	[3] 1,920	37	56	239
Crow	1,707	75	81	12	950	107	39	211
Flathead	2,452	46	56	4	(2)	(2)	(2)	(2)
Fort Belknap	1,198	46	94	2	800	29	10	401
Fort Peck	2,031	75	79	28	600	70	76	265
Rocky Boy's Agency	451	18	23	5	101	42	14	56
Tongue River	1,416	42	115	32	270	(2)	(2)	334

[1] Excess of deaths due to Spanish influenza.
[2] No physician; data not available.
[3] 1918 report.
[4] Estimated.

Vital statistics and tuberculosis, fiscal year 1919—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Nebraska	2,448	72	87	13	854	14	46	120
Omaha	1,380	46	43	7	(3)	(3)	(3)	(3)
Winnebago	1,068	26	44	6	854	14	46	120
Nevada	[4] 10,840	221	365	14	1,486	71	33	236
Fallon	405	[3] 6	15	.....	257	20	7	41
Fort McDermitt	323	8	37	6	.....	.....	.....	101
Moapa River	111	1	7	.....	100	.....	2	2
Nevada	526	15	21	1	430	6	11	34
Walker River	800	16	20	7	170	4	6	10
Western Shoshone	675	15	15	.....	529	41	7	48
Reno	[4] 8,000	160	250	.....	.....	.....	.....	.....
New Mexico	20,581	726	1,528	188	6,769	267	246	4,559
Jicarilla	603	39	57	42	490	55	85	260
Mescalero	613	20	42	6	142	15	19	214
Pueblo Bonito	2,275	160	599	60	1,250	6	50	283
Pueblo day schools	8,724	261	243	34	2,607	75	39	114
San Juan	5,550	[3] 218	560	45	1,380	116	40	3,680
Zuni	1,816	28	27	1	900	.....	13	8
New York, New York agency	6,100	116	104	.....	.....	.....	.....	.....
North Carolina, Cherokee	2,399	65	83	4	270	3	8	50
North Dakota	8,891	319	372	66	5,942	275	367	1,637
Fort Berthold	1,176	44	74	14	441	3	15	18
Fort Totten	979	22	27	19	625	55	70	345
Standing Rock	3,427	160	189	21	3,338	207	262	1,219
Turtle Mountain	3,309	93	82	12	1,538	10	20	55
Oklahoma	14,874	516	618	97	4,814	199	235	1,971
Cantonment	733	27	75	4	410	.....	60	326
Cheyenne and Arapaho	1,205	31	78	19	280	51	.....	98
Kiowa	4,374	186	202	35	2,800	99	150	1,320
Osage	2,154	[4] 64	61	6	40	1	1	42
Otoe	529	19	19	1	71	4	1	20
Pawnee	727	29	15	.....	100	5	.....	28
Ponca	1,072	40	23	2	250	.....	.....	26
Sac and Fox	678	24	29	2	145	6	.....	6
Seger	742	32	38	9	718	33	23	90
Seneca [5]	1,725	[3] 47	47	19	.....	.....	.....	.....
Shawnee [5]	735	17	31	.....	.....	.....	.....	15
Oregon	4,407	96	195	30	1,213	38	45	363
Klamath	1,154	27	65	10	450	28	14	125
Siletz	1,153	19	42	6	199	3	5	12
Umatilla	1,167	32	55	9	475	7	23	76
Warm Springs	928	18	33	5	89	.....	3	150
South Dakota	22,491	680	1,237	188	9,544	955	910	4,143
Cheyenne River	2,772	80	153	29	1,218	71	65	581
Crow Creek	984	27	41	7	345	12	7	44
Flandreau	283	[3] 7	18	1	430	16	14	1
Lower Brule	515	17	23	2	35	3	.....	71
Pine Ridge	7,218	232	354	50	3,133	471	481	1,815
Rosebud	5,366	162	497	65	2,350	323	109	1,180
Sisseton	2,304	75	56	13	700	52	36	135
Yankton	3,079	80	95	21	1,333	7	198	316
Utah	1,632	47	119	20	703	18	31	86
Goshute	397	7	22	7	15	.....	8	23
Shivwits	125	5	9	5	25	2	3	5
Uintah and Ouray	1,110	35	88	8	663	16	20	58
Washington	10,988	279	398	61	2,575	58	217	1,766
Colville	2,518	41	136	20	904	.....	78	340
Cushman	2,148	[4] 64	26	5	.....	2	.....	80
Neah Bay	669	8	16	.....	.....	.....	.....	.....

[3] 1918 report.
[4] Estimated.
[5] Partly reported.
[6] Includes scattered Indians in California.

Vital statistics and tuberculosis, fiscal year 1919—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Washington—Continued.								
Spokane	617	18	10	1	351	.....	18	51
Taholah	782	13	23	6	95	.....	9	20
Tulalip	1,321	48	84	18	855	10	46	157
Yakima	2,933	[4] 87	103	11	370	46	66	1,120
Wisconsin	9,605	287	338	51	3,297	193	162	1,164
Grand Rapids	1,233	31	82	10	251	12	8	46
Hayward	1,296	[4] 38	58	9	439	17	8	317
Keshena	1,733	66	96	11	1,156	12	65	200
Lac du Flambeau	754	19	13	4	215	14	35	59
Laona	350	6	9	2	80	12	3	33
La Pointe	1,082	51	23	7	670	102	31	264
Oneida	2,630	69	49	8	179	.....	7	216
Red Cliff	527	7	8	.....	307	24	5	29
Wyoming, Shoshone	1,712	107	94	.....	(3)	(3)	(3)	[2] 585

[2] 1918 report. [3] No regular physician. [4] Estimated.

Vital statistics and tuberculosis, fiscal year 1920.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Grand total	206,868	6,510	6,070	1,230	66,718	3,585	4,519	24,773
Arizona	42,400	1,182	957	153	10,109	391	440	3,633
Camp Verde	438	11	12	5	188	2	5	7
Colorado River	1,136	35	31	14	1,050	41	93	567
Fort Apache	2,495	92	79	10	1,395	.....	48	90
Havasupai	181	5	1	.....	177	6	5	11
Kaibab	106	4	4	.....	38	.....	1	1
Leupp	1,289	55	28	7	625	157	42	455
Moqui	4,227	103	42	9	549	.....	19	149
Navajo	11,280	[1] 484	[1] 300	(3)	2,100	118	13	1,060
Pima	6,249	70	81	14	835	17	24	122
Salt River	1,273	45	41	8	672	31	27	77
San Carlos	2,521	27	35	5	510	15	18	104
Sells	4,476	150	139	38	1,500	.....	100	200
Truxton Canon	429	13	14	3	180	4	5	210
Western Navajo	6,300	90	150	40	300	.....	40	580
California	13,241	334	436	69	4,342	78	83	488
Bishop	1,455	20	38	8	350	1	9	42
Campo	232	4	.....	.....	105	.....	.....	.....
Digger	276	2	4	3	17	.....	4	5
Fort Bidwell	627	29	94	10	300	4	6	47
Fort Yuma	959	25	37	12	722	4	21	86
Greenville	3,038	149	129	16	250	11	9	143
Hoopa Valley	1,784	19	27	9	250	18	20	50
Pala	1,585	61	66	8	1,523	16	13	22
Round Valley	1,840	14	15	1	46	4	.....	37
Soboba	1,011	4	8	.....	345	7	1	19
Tule River	434	7	18	2	434	13	.....	37
Colorado	796	24	34	11	90	21	7	31
Southern Ute	334	12	11	2	90	21	7	31
Ute Mountain	462	12	23	9	(3)	(3)	(3)	(3)
Florida, Seminole	454	7	9	.....	236	.....	.....	.....
Idaho	4,048	111	145	43	1,244	14	75	288
Coeur d'Alene	821	21	24	(2)	(3)	(3)	(3)	(3)
Fort Hall	1,765	69	63	28	570	.....	54	209
Fort Lapwai	1,462	21	58	15	674	14	21	79

[1] Estimated. [2] No data. [3] No physician; no data.

Vital statistics and tuberculosis, fiscal year 1920—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
Iowa, Sac and Fox	345	11	10	3	62	.....	16	16
Kansas, Kickapoo [6]	1,466	29	11	4	71	(5)	(5)	7
Michigan, Mackinac	1,093	(5)	(5)	7	(5)	1	18	60
Minnesota	12,378	464	239	69	1,197	208	219	2,256
Fond du Lac [7]	2,047	69	42	2	93	3	2	152
Leech Lake	1,762	62	37	26	600	120	76	196
Pipestone	105	5	4	1	20	.....	5	5
Red Lake	1,522	68	44	17	484	18	21	367
White Earth	6,942	260	112	23	(2)	[8] 67	[8] 115	[8] 1,536
Mississippi, Choctaw	1,400	22	20	10	136	13	25	53
Montana	12,374	379	355	114	6,311	706	358	2,273
Blackfeet	2,957	43	52	28	1,915	42	62	310
Crow	1,719	61	59	5	1,039	123	32	447
Flathead	2,544	78	59	13	909	68	52	500
Fort Belknap	1,217	30	31	26	650	62	28	300
Fort Peck	2,067	93	74	27	650	70	70	260
Rocky Boy's Agency	458	20	13	.....	178	42	14	56
Tongue River	1,412	54	67	15	950	300	100	400
Nebraska	2,461	99	95	11	1,470	59	89	208
Omaha	1,381	61	60	6	(2)	(3)	(3)	(3)
Winnebago	1,080	38	35	5	1,470	59	89	208
Nevada	[10] 10,900	217	312	23	1,709	53	47	243
Fallon	422	5	7	6	170	7	5	22
Fort McDermitt	308	2	9	6	(2)	(2)	(2)	84
Moapa River	123	4	4	2	105	.....	4	4
Nevada	545	10	8	.....	414	.....	25	46
Reno	[10] 8,000	160	250	(2)	(2)	(2)	(2)	(2)
Walker River	831	15	19	4	375	6	2	13
Western Shoshone	671	21	15	5	645	40	11	76
New Mexico	21,530	1,382	1,373	220	9,196	558	250	1,506
Jicarilla	588	27	45	9	500	95	42	452
Mescalero	616	11	15	4	390	225	20	150
Northern Pueblo	1,776	55	39	12	1,077	57	63	148
Pueblo Bonito	2,700	152	480	50	1,350	7	30	263
San Juan	7,000	800	500	48	2,885	110	50	160
Southern Pueblo	7,037	290	244	86	2,222	55	33	270
Zuni	1,831	47	50	11	772	9	12	63
New York, New York Agency	6,072	105	142	(2)	(2)	(2)	(2)	(2)
North Carolina, Cherokee	2,432	47	25	6	275	.....	9	100
North Dakota	9,018	308	266	65	6,192	260	249	1,559
Fort Berthold	1,205	57	31	9	467	.....	8	19
Fort Totten	930	33	37	18	275	38	55	316
Standing Rock	3,440	125	128	25	3,532	208	168	1,160
Turtle Mountain	3,423	93	50	13	1,618	14	18	64
Oklahoma	15,028	449	307	66	5,265	205	237	2,071
Cantonment	735	28	25	2	415	.....	58	305
Cheyenne and Arapaho	1,216	48	37	17	342	68	.....	220
Kiowa	631	162	100	32	3,075	84	139	1,185
Osage	2,147	24	31	3	54	.....	1	33
Pawnee [9]	2,393	86	48	4	467	20	11	45
Seger	751	25	22	5	912	33	28	266
Seneca	1,734	39	21	2	(2)	(3)	(3)	(3)
Shawnee [11]	1,421	37	23	1	(2)	(2)	(2)	17
Oregon	4,042	92	145	25	829	28	28	554
Klamath	1,132	41	54	7	100	.....	2	121
Siletz	750	9	31	5	199	3	2	7
Umatilla	1,119	26	43	8	430	8	21	76
Warm Springs	1,041	16	17	5	100	17	3	350

[2] No data. [3] No physician; no data. [4] Includes Otoe and Ponca. [5] Not reported. [6] Includes Potawatomi. [7] Includes Grand Portage and Nett Lake. [8] 1918 report. [10] Includes scattered Indians in California. [11] Includes Sac and Fox and does not include Potawatomi.

Vital statistics and tuberculosis, fiscal year 1920—Continued.

States and superintendencies.	Population.	Births.	Deaths.	Tuberculosis deaths.	Indians examined.	Latent tuberculosis.	Active tuberculosis.	Estimated tuberculosis.
South Dakota	22,649	698	631	197	9,907	578	1,800	6,117
Cheyenne River	2,763	82	82	24	1,742	49	29	235
Crow Creek	953	32	30	6	(2)	(2)	(2)	(2)
Flandreau	286	6	8	2	.....	.....	2	.....
Lower Brule	515	24	29	4	317	52	73	249
Pine Ridge	7,225	223	153	68	4,453	473	503	1,930
Rosebud	5,430	128	178	69	2,500	.....	1,103	3,500
Sisseton	2,367	81	53	5	(2)	(2)	(2)	(2)
Yankton	3,110	122	98	19	895	4	90	203
Utah	1,641	58	48	5	594	38	30	149
Goshute	409	12	12	1	15	.....	4	22
Shivwits	114	10	6	3	44	3	2	5
Uintah and Ouray	1,118	36	30	1	535	35	24	122
Washington	9,639	168	266	71	3,362	94	317	1,853
Colville	2,698	41	65	13	1,376	30	127	636
Cushman	[11] 3,654	10	24	2	25	.....	.....	87
Neah Bay	671	20	21	4	(2)	(2)	(2)	(2)
Spokane	652	14	10	5	234	.....	31	48
Taholah	790	15	31	10	130	.....	8	20
Tulalip	1,257	41	49	19	825	10	45	147
Yakima	2,917	27	66	18	772	54	106	915
Wisconsin	9,713	221	177	52	3,091	268	195	1,156
Grand Rapids	1,251	28	32	10	30	3	15	36
Hayward	1,292	17	24	10	290	15	8	362
Keshena [9]	4,417	115	67	25	937	16	70	394
Lac du Flambeau	781	16	11	2	781	48	78	55
Laona	364	14	11	1	93	8	2	19
La Pointe	1,083	28	27	2	655	159	17	251
Red Cliff	525	3	5	2	305	19	5	29
Wyoming, Shoshone	1,748	103	67	6	1,030	12	27	152

[2] No data.
[3] No physician; no data.
[9] Includes Oneida.
[11] Does not include 1,475 unattached Indians.

Tables of comparison vital statistics, 1914 to 1920.

DEATHS AMONG INDIANS.

Fiscal year.	Tubercular deaths.	Deaths of infants under 3 years.	Other deaths.	Total deaths.	Per cent of tubercular deaths to total.	Per cent of infant deaths to total.
1914	1,839	2,391	1,548	5,778	0.31	0.41
1915	1,986	1,897	1,749	5,632	.35	.33
1916	1,347	1,303	1,920	4,570	.29	.28
1917	1,210	1,379	2,005	4,594	.26	.30
1918	1,266	1,541	1,875	4,682	.27	.32
1919	1,330	1,644	6,488	[1] 4,931	.14	.17
1920	1,230	1,436	3,404	[1] 4,950	.20	.23

SUMMARY AND COMPARISON.

	Year.						
	1914	1915	1916	1917	1918	1919	1920
Birth rate per 1,000 Indian population	38.79	35.25	31.85	31.50	29.42	30.92	31.67
Death rate per 1,000 Indian population	30.76	30.50	23.33	24.97	24.73	[1] 24.16	[2] 22.33
Death rate per 1,000 Indian population (including influenza deaths)	.....	.....	.....	.....	.....	44.96	29.53

[1] Exclusive of influenza deaths.
[2] Exclusive of influenza deaths; figured on a basis of 46 reservations from which influenza statistics were secured.

APPENDIX C.

[Taken from commissioner's report for fiscal year 1911.]

HEALTH.

First in importance come the means employed to protect and improve the health of the Indians—a part of the service in which the office has a medical supervisor, 100 regular and 60 contract physicians, 54 nurses, and 88 field matrons. In the Indian community, as in other communities, there is insistent concern for the cure of existing disease, but the great emphasis is put upon prevention of disease and increase of personal efficiency. In carrying out preventive measures, a very promising beginning has been made in having physicians secure intimate information about the living conditions of each individual by going from house to house and camp to camp and examining closely into hygienic conditions. This aggressive campaign awakens the Indians to the danger of tuberculosis, trachoma, and other infectious diseases and, through simple instruction and suggestion, helps them to some understanding of how they can improve their living conditions and extricate themselves from the unsavory and insanitary environment in which many of them have existed.

Results are already apparent. A physician at White Earth, Minn., reports that upon his second round of visits he found marked improvement in 50 per cent of the homes. The physician at Leupp, Ariz., after spending 21 days among the camps, submitted a medical survey that may well serve as a model for the service. He found, too, that his personal visits did much to overcome the Indians' reserve and their repugnance to modern medical attention, for his treatment was eagerly received, and many of his patients in the camps later sought him at the hospital for further attention.

The increasing influence of trained physicians decreases the dependence upon medicine men. These medicine men, however, can be made very helpful, as was shown by the superintendent of the Northern Cheyenne Reservation, who secured the chief medicine man of the tribe as the physician's most devoted assistant and the efficient dispenser of his drugs.

Attacking the problem of disease in a slightly different way, one of the physicians has prepared a series of stereopticon slides and motion-picture films to illustrate in juxtaposition the ordinary habitations of careless Indians and the pleasant, healthful homes of Indians who have taken advantage of the opportunities the Government has given. While throwing these pictures upon a screen he gives a simple, pointed talk upon outdoor exercise, ventilation, disposal of garbage, care of milk, water supply, tuberculosis, trachoma, and kindred subjects. On an extended tour among the schools and agencies of Montana, California, Arizona, and New Mexico he has given 52 of these educational entertainments before audiences of Indians and employees aggregating more than 10,000. The medical supervisor, too, as he travels the field carries sets of slides and gives numerous illustrated talks in the evening, and several superintendents have received slides and typewritten lectures to use at their reservations and schools.

The doctor who lectures has also given each agency and school he has visited a complete sanitary inspection and has operated upon 192 cases of trachoma. In this way he supplements the work of the medical supervsior and of the physicians who are specially engaged with trachoma.

One of the most important purposes of the sanitary inspection given schools and agencies has been a real beginning in eliminating toilet and bathrooms from basements. As fast as possible all plumbing is being installed above grade in separate structures connected with the main building through covered passages. The removal from basements of rooms used by students for any purpose whatever will mark a distinct sanitary advantage; and the abolition of half-underground playrooms, the gloomy, cheerless atmosphere of which is utterly antagonistic to any spirit of healthful play, will accomplish much more by freeing the children from most depressing influences.

The field matrons, in the midst of their varied activities, both prepare the way for physicians and augment their service. They are peculiarly able to give directions that reduce the high mortality among infants and mitigate the severity of children's diseases. By way of illustration, the superintendent of Southern Ute, Colo., reports a very much less percentage of deaths among children than in former years, with

a resulting increase in the census roll. This change he credits to the matron assigned to that territory.

As another preventive measure, orders have been issued that every effort be made to vaccinate Indians not immune from smallpox—heretofore a recurring scourge, particularly in the Southwest. The returns show that many Indians submitted to vaccination, and that by tact and persistence vaccination will soon become so common as to remove present peril. It happens that there have been fewer epidemics of smallpox than usual. The only deaths during the current epidemics were one at Southern Ute and four at Shoshone.

The most serious disease imperiling the Indians is tuberculosis, which, under improper living conditions, has produced a very high mortality. The percentage of Indians infected varies greatly; perhaps the extremes may be represented by the Navajo Springs Reservation, Colo., where in a population of nearly 500 there are no active cases, and the Fort Lapwai Reservation, Idaho, where there is scarcely a family in a population of over 1,400 which has not one or more members affected.

This disease is being attacked in all practicable ways. In addition to the preventive measures which the service is endeavoring to put into effect everywhere, the office is enlarging its four sanatoria; the one at Phoenix, Ariz., will now accommodate 65 patients; the one at Laguna, N. Mex., 25 patients; and the Fort Lapwai Boarding School, Idaho, which is being made entirely into a sanatorium, will accommodate 120 patients. At Fort Apache, Ariz., and at the Salem school, Oregon, the special hospitals are being continued, but without entire success at the Salem school, because of excessive humidity during the winter. The effectiveness of our sanatoria is apparent on their records, which show that between 10 and 11 per cent of the patients have recovered and that more than 90 per cent have shown marked improvement.

As with tuberculosis, the prevalence of trachoma differs greatly in the tribes. In the Northwest some of the reservations are practically free, whereas in the Southwest at some places 65 to 95 per cent of the Indians are infected.

The two specialists in trachoma employed in the service have visited nearly every point in the Southwest, treating existing cases and giving local physicians full instructions about the peculiarities of the disease and its prevention. These two special physicians have examined and treated more than 6,000 Indians. During the next fiscal year they will devote some of their time to the Northwest, and at the beginning of 1913 they will have so organized the campaign as to be able to inspect the whole field.

At the trachoma hospital at Phoenix, Ariz., in charge of two specialists in diseases of the eye, over 800 cases have been operated upon and treated. This hospital also affords valuable means of instruction to regular physicians from the field who are able to visit it.

The prevailing statement of the superintendents is that in their schools and on the reservations there has been an encouraging improvement in health and that the Indians are building more sanitary houses. Nevertheless, at a few points in the Southwest, as at Fort McDermitt and Walker River, Nev., and Colorado River, Havasupai, and other places in Arizona, where the physical environment is unfavorable, the superintendents report little or no progress. At these superintendencies renewed and persistent efforts will be made to improve conditions.

[Taken from the commissioner's report for the fiscal year 1912.]

HEALTH.

The campaign for good health and physical efficiency among the Indians has continued with increased momentum along the lines outlined in my annual report of last year.

With the small force and inadequate funds at our disposal we have endeavored to meet exigencies as they arose; have attempted to stem the tide of disease, and in addition have been gathering such data as would enable us to impress the Congress with the need of money enough to make a complete medical survey of the whole field, and to increase and organize a medical corps for a house-to-house campaign against disease throughout the service.

On the basis of the data so far obtained the President sent a special message to Congress strongly urging this action. The President's message and the estimates submitted are as follows:

To the Senate and House of Representatives:

The present conditions of health on Indian reservations and in Indian schools are, broadly speaking, very unsatisfactory. In many parts of the Indian country infant mortality, tuberculosis, and disastrous diseases generally prevail to an extent exceeded only in some of the most insanitary of our white rural districts and in the worst slums of our large cities.

The death rate in the Indian country is 35 per thousand, as compared with 15 per thousand, the average death rate for the United States as a whole. The average death rate in some of the healthiest of our cities is as low as 12 per thousand. No exact figures are yet available for infant mortality among Indians, but field studies now being made show that while proportionately more Indian babies than white babies are born, very many more Indian babies die.

Last year, of over 42,000 Indians examined for disease, over 16 per cent of them had trachoma, a contagious disease of the eye, frequently resulting in blindness, and so easily spread that it threatens both the Indian communities and all their white neighbors. It is a disease so serious that at no port of entry in this country is the immigrant with trachoma allowed to land. On the Kiowa, Comanche, and Apache Reservations 71 per cent of the school children have trachoma. The curing of this disease frequently requires years of constant care. Of the 40,000 Indians examined, 6,800 had tuberculosis. On the White Earth Reservation, in Minnesota, a house-to-house canvass in 1910 and 1911 revealed that of 3,300 Indians, 600 had tuberculosis. An examination of half the Indians on the Blackfeet Reservation, Mont., shows that one-third of that number have tuberculosis. Of the total population of the Colorado River Reservation, Ariz., 20 per cent have tuberculosis. At the school of the Mescalero Reservation, in New Mexico, where climatic conditions are ideal, 5 per cent of the children in school have tuberculosis. Of the 7,000 Indians of the Pine Ridge Reservation, S. Dak., over one-fourth have tuberculosis. Even in southern California at least 10 per cent of the Indians have this dread disease. In addition to these scourges and the special lowering of vitality which exists in these sections where the Indians can procure intoxicants, they are more subject than the average white man to the whole list of acute diseases. Few Indian homes anywhere have proper sanitary conditions, and in many instances the bad condition of their domestic surroundings is almost beyond belief.

As guardians of the welfare of the Indians, it is our immediate duty to give to the race a fair chance for an unmaimed birth, healthy childhood, and a physically efficient maturity.

The most vigorous campaign ever waged against diseases among the Indians is now under way. It began in 1909. Prior to that time little attention had been given to the hygiene and health of the Indians. On some reservations, equal in area to a State, there were not more than two physicians, frequently only one. In 1909 tens of thousands of Indians were substantially without any chance to reach a doctor. The Government was startled into a reform in this matter through the discovery that at the Phoenix Indian School, Ariz., more than 65 per cent of the children were infected with trachoma. In response to the showing then made, Congress immediately appropriated an emergency sum of $12,000. Physicians sparsely scattered over the Indian country were then organized as the nucleus of an efficient fighting force, and the fight has been conducted not only on curative but on preventive lines. As the need for this work has become more apparent, congressional appropriations have steadily increased; but even to-day the effective fighting force of the service is so disproportionate to the ground to be covered and the problems to be met that it is impossible to make even a medical survey of the whole field.

The Indian service has under its general supervision 296,000 Indians, and of these it is a conservative estimate to say that 160,000 are still entirely dependent on the Federal medical service. This service has 160 physicians, over a third of whom, under their terms of employment, devote only a part of their time to Indians. When it is remembered that Indians are so scattered that a physician frequently has to drive a day or more out and a day or more back to reach one family, the inadequacy of such service is plain. While there are many efficient and self-sacrificing physicians in the service, the smallness of the salaries, which average only $1,186 a year, necessarily affects the qualification and ability of the physicians engaged. In spite of adverse conditions, thousands of cases of tuberculosis and trachoma are being systematically treated, and serious epidemics of diphtheria, measles, cerebrospinal meningitis, and other infectious diseases have been checked. Hundreds of lives have been saved, and a distinct start has been made in getting fresh air and generally better sanitary conditions into the homes.

The Indian medical service should therefore be substantially increased in size and should be lifted into efficiency through the better men whom, as a rule, only better salaries can command. Of course, this change should take place along carefully planned business lines and without extravagance and after a comparative study of other medical services, National, State, and local.

Through the proper channels is now submitted to Congress an estimate for the Indian medical service for $253,350, accompanied by a detailed statement of the expenditures required. This sum, together with an addition to the amounts which will probably be available in the Indian appropriation bill for the current year, and which were asked for in that bill before all the data now available were at hand, will enable the Indian Service to make a complete medical and sanitary survey of the whole field, with a view to curing existing troubles and to the prevention, so far as may be, of their recurrence. With this additional appropriation, if granted by Congress, it is believed that the tide can be turned, that the danger of infection among the Indians themselves and to the several millions of white persons now living as neighbors to them can be greatly reduced, and genuine cooperation with local State boards of health now already under way can be adequately provided for. It is not expected to build up a highly organized Indian medical service, but rather to put efficient physicians and nurses and field matrons, properly equipped to reach all the Indian families, in the field, where service under the best conditions is one of constant self-sacrifice and hardship, but where constant application to those methods which the study of modern hygiene has developed will show results so encouraging as fully to justify the expenditure of the sums herein asked.

WM. H. TAFT.

THE WHITE HOUSE, *August 10, 1912.*

The estimates submitted were as follows:

"For the construction of a tuberculosis hospital for the treatment of adult tuberculosis cases and cases past the incipient stage of the disease, for the use of Indian patients from all sections of the country, $100,000; for the employment of two additional medical inspectors, including salary and expenses, $8,400; for the employment and expenses of an assistant supervisor for the developing to greater efficiency the teaching of home sanitation by field matrons and teachers of housekeeping, $4,200; for increasing the number of and salaries of physicians, $85,000; for increasing the salaries of nurses, $2,750; for increasing the salaries of certain field matrons, $4,000: *Provided*, That the amounts paid to physicians, nurses, and matrons out of the funds hereby appropriated shall not be included within the limitation on salaries and compensation of employees contained in the act of June 7, 1897.

"To establish a central pathological laboratory, $1,000; for the purchase of transportation equipment for physicians, field matrons, and field nurses, $10,000; for the correction of sanitary defects in Indian homes, $10,000; for the building of screened sleeping porches on schools and hospitals, $10,000; for equipping schools with playground apparatus, $15,000; for the purchase of standard medical literature for physicians, $2,000; for the purchase or publication of pamphlets, post cards, placards, and other literature on health subjects for distribution among Indians, $1,000; in all (submitted), $253,350."

If the bill for $150,000, mentioned above, is enacted, the money will be used to defray expenses of the field campaign against the two diseases, trachoma and tuberculosis, and would not be available for use in increasing the efficiency of the work on the reservations where it is proposed to inaugurate separate campaigns for the betterment of the local sanitary conditions.

Of 42,645 Indians examined for disease, 16.11 per cent, or 6,870, were found to be suffering from tuberculosis. There is no sanatorium in the United States for the treatment of adult tubercular Indians and there is provision for only 175 incipient tubercular children of school age. The necessity for a Government sanatorium for the accommodation of some of the more needy cases is certainly apparent.

At present the entire Indian country is receiving only such medical inspection as may be made by the medical supervisor and a physician expert who is engaged in special tuberculosis work. Systematic inspection is absolutely necessary, and can not be carried out unless additional inspectors are appointed. These physicians would be assigned to regular districts, where they would have immediate charge of medical matters, including supervision of physicians, collection of vital statistics, and improvement of sanitary conditions on the reservations.

At neither agencies nor schools do physicians have either time or necessary apparatus to carry on pathological work for diagnostic purposes. Were a laboratory of this kind established, samples of sputum of cases suspected of having tuberculosis could be examined by an expert in such work. The examination of sputum alone would require the entire time of one pathologist. Many other problems of diagnosis are constantly requiring such help as is afforded by a laboratory of this kind.

[Extract from commissioner's report, fiscal year 1913.]

HEALTH.

In accordance with directions contained in the Indian appropriation act approved August 24, 1912 (37 Stat. L., 519), the Surgeon General of the Public Health Service detailed 13 officers of that service to make an investigation as to the prevalence of tuberculosis, trachoma, smallpox, and other contagious and infectious diseases among the Indians of the United States, assigning each to a separate school or reservation. This investigation began September 28, 1912, and was concluded December 30, 1912, covering the tribes of Indians in 25 States and involving the personal inspection of 39,231 Indians. Senate Document No. 1038, Sixty-second Congress, contains a complete report of the investigation as transmitted to Congress by the Secretary of the Treasury.

Comparative studies plainly show that the prevalence of tuberculosis among Indians is greatly in excess of that among the white race, and the prevention of the ravages of this disease is the most important medical problem of the bureau.

Repeated examinations with the Von Pirquet tuberculosis test have demonstrated that on many reservations tuberculosis infection exists in as many as 90 per cent of the school children, and while this of course does not mean active cases, it does indicate the excessive incidence of the disease, much of which under favorable conditions may at some time become active. On account of the high incidence of tuberculosis in pupils of Indian schools the matter of health is one of paramount importance.

The service sanatoria at Fort Lapwai, Idaho, Phœnix, Ariz., and Laguna, N. Mex., have each completed a successful year. Their success has stimulated the office to add to their number, and accordingly there has been established at Toledo, Iowa, an additional sanatorium with a capacity of 65 patients, which by reason of its location will be admirably adapted for the treatment of children with incipient tuberculosis from the northernmost reservations. Besides offering them the advantages of sanatorium treatment, it will give them the benefit of a change of climate without taking them too far from home. As at the other sanatoria, a school will be provided for children able to take advantage of it.

The force of ophthamologists has been increased to six, each of whom has been assigned to a separate district in which he will have supervision of the eye work, it being the plan to have a qualified operator within reach of each agency physician. These surgeons will be important factors in controlling the spread of trachoma.

Trachoma with an incidence approaching 70 per cent was reported among the Five Civilized Tribes, presenting such an alarming situation that an assistant medical supervisor was directed, during the fiscal year 1913, to make a survey of the whole Five Tribes country with a view of determining the medical and sanitary needs of the Indians.

During the year epidemics of certain of the more common infectious diseases occurred on many reservations, diphtheria, smallpox, scarlet fever, and measles occurring most frequently. Diphtheria visited seven reservations during the year, with but one death in 54 cases. This unusually low death rate is due to the close observation under which the school children are kept by the physicians, the immediate use of diphtheria antitoxin, and the mild form in which the disease appeared.

Smallpox occurred in a mild form excepting in the Five Tribes, where it appeared in a most virulent type. Indians generally submitted cheerfully to vaccination by and followed the instructions of service physicians.

Typhoid fever, a disease formerly so rare among Indians that many service physicians believed there existed a racial immunity, is occurring with greater frequency, due in all probability to the closer contact of the Indians with the white race. Sufficient cases have already occurred and these have been so widely distributed among the tribes that it can be safely said that the Indian is not naturally immune to this disease.

By especially prepared lectures illustrated by stereoptican slides and motion pictures, delivered to Indians on the reservations during the past few years, appeal has been made direct to them to improve their living conditions, and they have been taught by this means how to guard against disease. These lectures have been well attended, and their influence for good has been great.

[From the commissioner's report for fiscal year 1914.]

HEALTH.

With the impetus given to the health work by the increased appropriations for the fiscal year 1914 comes the realization that the much-neglected sanitary conditions of the past among the Indian tribes can be tremendously improved and sanitary homes and good health replace the squalor of the past on most of the reservations.

The opening of many Indian reservations for settlement by white men has made the health problems more pronounced in the districts where the white settlers have come in contact with the Indians. The Indian must not only receive treatment, and, if possible, be cured of trachoma, tuberculosis, etc., but he must be trained to live in sanitary homes and care for his personal hygiene, so that he will not become a menace to his neighbors, either Indian or white.

The work of eradicating tuberculosis and trachoma from among the Indians will be continued in a most aggressive manner. The children must be protected in the schools as well as in the home. Disease is easily transmitted to the homes of the healthy from the homes of those afflicted with tuberculosis, trachoma, etc., and it becomes an imperative duty of the Indian Service to see that the schools maintained by the Government for the education of Indian children do not become a focus for the transmission of disease between tribes rather than an instrument for the eradication of disease.

In the Indian schools there has been a determined effort to detect the tubercular cases in their incipiency and place them in a sanitarium for treatment, where there is one available, or return the child to the home, more for the protection of the well children than in the hope of helping the afflicted one. The trachomatous patients are segregated in the schools and kept under treatment.

There is a vital necessity for more hospitals to care for these children returned to their homes. Often they represent families which have a number of cases of tuberculosis needing sanitarium treatment, or the removal of a case of active tuberculosis to a healthy home may introduce the disease there and form another source of infection to the surrounding Indians.

At the close of the fiscal year there were 51 hospitals with a combined capacity of 1,432 patients, and 6 under construction, to care for a population of 331,250 persons with a high percentage of tuberculosis and trachoma. Out of 199,438 Indians on reservations 67,895 were examined last year. Tuberculosis was present in 8,245 cases and trachoma in 13,841, and it is estimated that there are 21,980 suffering with tuberculosis and 35,769 afflicted with trachoma. The death rate per thousand last year was 30.76 per cent, and the percentage of deaths due to tuberculosis was 31.83, while the birth rate per thousand was 38.79.

In the appropriation act for the next fiscal year Congress has given the health work $300,000. There will be $100,000 available for hospital purposes besides the direct items for a sanitarium in the Choctaw Nation and one at Red Lake or Leech Lake and one on the Fond du Lac Reservation. With this additional money it is proposed to build seven small hospitals, at a cost of from $12,000 to $15,000 each, on the reservations where the need of medical attention has been most keenly felt rather than place this amount in one or two big hospitals more remotely placed. The smaller hospitals, it is believed, will provide more effective and prompt attention for the sick and at the same time keep the patients near their families.

TUBERCULOSIS.

This is the scourge of the Indian race, and with a full appreciation of the seriousness of the conditions presented an earnest effort is being made to successfully combat the disease. The progress of the work has been hampered heretofore mainly by insufficient funds. I am fully aware of the fact that to perpetuate the Indian race the inroads of tuberculosis must be stayed. To do this it is essential that better sanitary conditions be instituted in the Indian homes, and cleanliness, better ventilation, and sufficient and nourishing food not only be insisted upon but provided if necessary.

Realizing the importance of these matters, a study has been made of the physical conditions of the schools with a view to giving the children sufficient dormitory space, playground equipment, and, where necessary, nourishing food suited to their physical condition in addition to the rations now furnished. Every effort is being made to meet conditions of this type as soon as they are discovered.

Regular talks are given to the children on sanitary matters; many of the schools are provided with stereopticon outfits, and, where practicable, the talks are illustrated.

Constant watching, monthly weighing, the use of the Pullman towel system, daily physical training, use of the playground equipment, and sufficient space and ventilation of the dormitories and school buildings, together with the training being given at home by the field matrons, should result in a stronger race physically in the next generation, as well as the reduction of the death rate to one not in excess of the white race.

[From commissioner's report for the fiscal year 1915.]

HEALTH.

The maintenance of good health is a prime requisite in the process of civilizing the Indian and placing him upon a self-supporting basis. Large sums of money and much scientific thought have been given to the improvement of sanitary conditions among these people. Results indicate that there has been wonderful improvement.

Epidemics of whooping cough, measles, scarlet fever, diphtheria, smallpox, and pneumonia have been met and dealt with as promptly and as consistently as available funds would permit. Cases of Rocky Mountain spotted fever appeared at Warm Springs, Oreg., and Fort Apache, Ariz., but epidemics of these diseases were successfully averted.

Tuberculosis among the Indians exceeds that among the white race and its prevention is a most important problem. Trachoma, with its resultant damaged vision, is a serious drawback to the Indian in his progress toward civilization.

The medical force working in the field consists of 1 medical supervisor, 1 assistant medical supervisor, 1 special supervisor, 7 special physicians, 7 field dentists, 6 field nurses, 121 regular and 61 contract physicians, 81 nurses, and 78 field matrons. Supervisors are required to keep in touch with the rapidly increasing knowledge of appropriate prophylactic measures to check the spread of disease, and after studying the local conditions at each school and on each reservation to suggest ways and means for improving the health and sanitary conditions of the Indians.

The vital truth of right living, preservation of health, and prevention of disease are being taught in the schools. An essay contest on the subject of tuberculosis has demonstrated that the Indian pupils have gained a considerable knowledge of its aetiology. The traveling medical officials carry stereopticon slides illustrating the habitations of careless Indians and the pleasant, healthy homes of Indians who have taken advantage of the opportunities the Government has given, and give appropriate lectures at the agencies they visit. Resident physicians at the agencies give talks to the pupils and reservation Indians on subjects connected with sanitation, care of the sick, prevention of infant mortality, and first aid to the injured. Clean-up days have been instituted and found of inestimable value in arousing enthusiasm.

The homes of adult Indians are visited by about 78 field matrons, who teach the Indian women domestic arts and proper care of home, person, and children.

With prophylactic measures must be taught the elimination of the foci of diseases which may be in existence. The work done has been fraught with difficulties, which are gradually being overcome. The old Indians' dependence upon the medicine man is still strong in many places, and the constant changes in the personnel of the agency physicians, due to the small salaries paid many of them, is not conducive to the development of confidence in the white man's methods, for he, like the white man gives his confidence only after it is earned. It is believed that the influence of the Indian medicine man, however, is gradually giving way. The number of cases treated by the physicians is gradually increasing and hospital treatment is more often sought.

The demand for hospitals, which are being constructed as fast as funds become available, indicates the growing popularity of this branch of the work. At the close of this fiscal year there were 52 hospitals and 4 sanatoria, with a combined capacity of 1,567. Under construction are 4 hospitals and 6 sanatoria, with a combined capacity of 265.

In many of the Indian boarding schools trachoma is no longer a problem, as experience has shown that where control can be had over the children and where careful and persistent work is done the disease can be prevented or cured. This is being done. Among the camp Indians, however, conditions with respect to the disease are not good. No chance is, of course, lost to constantly exploit the value of operation and treatment of trachoma, and many Indians are taking advantage of the opportunities offered. The long duration and the painful nature of the treatment necessary before a cure is effected are, perhaps, the most important causes for the slow progress made.

The problems to be solved in connection with tuberculosis are similar to those among the poorer classes of whites. It means a campaign of education to prevent the spread of the disease and the endeavor to arrest it in those cases with active lesions.

The sanatoria already in use at Phoenix, Fort Lapwai, Sac and Fox, and Laguna show that this method of treating active cases is of increasing value. The capacity of the Laguna Sanatorium has been increased to 34 and Sac and Fox to 88. The East Farm Sanitorium at Phoenix and the one at Fort Lapwai care for 100 each. During the fiscal year 1915 arrangements were effected for the erection of sanatoria at the Carson, Blackfeet, Turtle Mountain, Cheyenne and Arapaho, Pima, and Mescalero Reservations.

In line with the above, a part of available funds were used in the purchase of material for the correction of defects in sanitation in the Indian homes. Especial attention is being given to better disposal of sewage and protection of water supplies from contamination.

Arrangements have been made with the United States Public Health Service for the examination of pathologic specimens by the laboratories of that bureau which may be received from medical officers in the Indian Service. This courtesy will facilitate diagnosis.

The relation between diseased teeth and the development of systemic disease was recognized by the field dentists, and led to a campaign for better methods of caring for the teeth and the elimination of oral sepsis. Pyorrhoea (Riggs disease) was found to be prevalent and measures were at once instituted directed toward the correction of this condition.

The insane asylum for Indians is located in Canton, S. Dak., and has 51 patients, the limit of its capacity. Under present conditions no more can be accommodated and the most deserving for whom applications are made are placed in State asylums.

[Report of Commissioner of Indian Affairs, fiscal year 1916.]

HEALTH.

A determined fight has been made for preventive measures against disease on Indian reservations.

The greatest problems confronting us are tuberculosis, trachoma, and a high infant mortality.

Medical supervisors visit as frequently as possible each agency and school, make medical inspections, and suggest remedies for unhealthful and insanitary conditions. The special physicians are principally engaged in eye work, all being ophthalmologists. They are constantly on the road, performing the various eye operations required, instituting campaigns against trachoma, and instructing local physicians in the best treatment of that disease and other eye affections found among the Indians.

The field dentists visit the schools and do the requisite dental work for the school children. They have in many cases succeeded in doing work among the adult Indians, who are beginning to realize the importance of such attention.

The duties of the school and agency physicians are extensive and include the general practice of medicine and surgery.

The field matrons are doing a wonderfully helpful work; they are the good Samaritans of the Indian Service, and many more than our funds will now permit could be employed to great advantage.

The treatment of trachoma is difficult, but the problem in the schools is now nearly solved. The number of tnese cases has in most places been materially reduced by the curing of disease in the older pupils, yet the introduction of new cases into the schools in the primary grades continues to some extent. This will continue until greater inroads can be made on the foci of infection in the homes of the older Indians. Since the installation in the schools of the Pullman towel system, the segregation of acute trachomatous cases, and the institution of regular treatment new cases seldom appear except through outside infection.

Among the older Indians the elimination of trachoma has not been accomplished, but progress is everywhere apparent.

Tuberculosis is an ever-present problem, and the Indian has no racial immunity to tubercular infection. The records show that a large per cent of the Indian mortality from tuberculosis is among children, and evidence is accumulating that the primary infection occurs in childhood. Among young children under 2 years of age the appearance of tuberculosis is almost inevitably the precursor of a fatal issue. We are therefore strenuously exerting our efforts to protect the infants and children, which is being done through a campaign of education looking to better methods of caring for them.

In furtherance of our health campaign, on January 10, 1916, I sent the following letter to every Indian Service employee and to others known to be interested or those who, it was thought, might be induced to participate, directly or indirectly, in the accomplishment of health betterments among the Indians.

In an address before the Congress on Indian Progress held at San Francisco in August of last year I said:

"It is our chief duty to protect the Indian's health and to save him from premature death. Before we educate him, before we conserve his property, we should save his life. If he is to be perpetuated, we must care for the children. We must stop the tendency of the Indian to diminish in number and restore a condition that will insure his increase. Every Indian hospital bed not necessarily occupied with those suffering from disease or injury should be available for the mother in childbirth. It is of first importance that we begin by reestablishing the health and constitution of Indian children. Education and protection of property are highly important, but everything is secondary to the basic condition which makes for the perpetuation of the race."

That thought has deepened its hold upon my convictions.

We must guarantee to the Indian the first of inalienable rights—the right to live. No race was ever created for utter extinction. The chief concern of all ethics and all science and all philosophies is life.

The Indian has demonstrated his humanity and his capacity for intellectual and moral progress amid conditions not always propitious and I am eager to participate with all the favoring forces that contribute to his racial triumph, believing as I do that when he comes to himself as a factor in the modern world his achievements will enrich and brighten the civilization of his native land.

I should like to get the feeling I have upon this question into the conscience and aspirations of every Indian Service employee until there shall prevail a sort of righteous passion to see that every Indian child has a fair chance to live.

There is something fundamental here:

We can not solve the Indian problem without Indians. We can not educate their children unless they are kept alive.

All our Indian schools, reservations, individual allotments, and accumulated incomes tend pathetically toward a wasted altruism if maintained and conserved for a withering, decadent people.

If we have an Indian policy worthy of the name, its goal must be an enduring and sturdy race, true to the noblest of its original instincts and virtues and loyally sympathetic with our social and national life; a body of efficient citizens blending their unique poise and powers with the keen and sleepless vigor of the white man.

We must, therefore, renew daily our warfare against the arch foe of efficiency—disease.

We must begin at the right place—not only with the infant at its mother's breast, but with the unborn generation.

The new campaign for health in which I would enlist you is first of all to save the babies.

Statistics startle us with the fact that approximately three-fifths of the Indian infants die before the age of 5 years.

Of what use to this mournful mortality are our splendidly equipped schools?

I earnestly call upon every Indian Bureau employee to help reduce this frightful percentage. Superintendents, teachers, physicians, matrons, nurses, everyone can do something by instruction or example, the physician with his science, the nurse with her trained skill, the matron with her motherly solicitude, all of us by personal hygiene, cleanliness, and sobriety.

With this idea uppermost, all employees whose duties bring them in touch with Indian families must work in closest harmony for surrounding the expectant Indian mother with favorable health conditions before and after childbirth. The sanitation of the homes of such women should have special attention and no baby allowed to be born into an environment germinating disease if prevention is available.

The simplest rules of motherhood applied under intelligent and friendly direction would save most of the Indian babies who annually fill untimely graves.

I want to send this safety, as far as possible, into every home of an Indian mother, whether that home be a tepee, a tent, a log house with dirt floors, or a more comfortable abode.

This means work, hard work, but the reward will be living souls.

I shall expect each superintendent to acquaint himself with the home conditions of every Indian family on the reservation and to adopt practical and effective means for quick and certain improvement.

Superintendents must organize such a system of cooperative information through their employees as will enable them to do this, exercising, of course, great care and discretion in gathering the requisite information.

I shall consider, on the superintendent's recommendation, a reasonable use of individual Indian moneys for the improvement of insanitary homes, where the family has such funds. In the absence of such moneys, every effort must be made to secure clean and wholesome conditions through the efforts of the adult members of the family. If there are no members physically able to labor, expenditure may be recommended from the funds "Relieving distress and prevention, etc., of disease among Indians."

The crux of the matter is this: We must, if possible, get rid of the intolerable conditions that infest some of the Indian homes on the reservation, creating an atmosphere of death instead of life.

It will be the duty of the field matron to learn of conditions existing in Indian homes and of cases requiring medical attention and report them to the superintendent. It will be her duty to see that the prospective mother knows what equipment is necessary for the proper care of her new-born babe, and the importance of the provision which the husband should make for the health and comfort of the mother and child should be early and urgently impressed upon him.

Physicians must be promptly advised of all cases of prospective motherhood and they must see that proper attention is given before and after that event, arranging, if practicable, for hospital facilities where the home surroundings are unfavorable. Special effort should be made to see that the mother has nourishing food before and following childbirth.

I am advised that the death rate among Indian babies is most excessive after the nursing period when, through ignorance or carelessness, they are given improper food, such as green fruits, melons, or corn, made further harmful, perhaps, by the presence of flies, and from the use of which intestinal disorders are almost sure to follow.

There should be vigilant and unrelenting effort to impress upon parents the great importance of supplying food which will furnish proper nourishment for the growing child. There should be constant endeavor to educate parents to an understanding of the value of a sufficient supply of cow's or goat's milk, or condensed milk, pure water, and suitable solid food, and to the necessity of maintaining cleanliness of person, cooking utensils, and other articles of domestic use.

It would be worth while, it would be great, if we could lift the Indian out of his uninformed condition and induce him to see that the natural and beautiful love he has for his children will not keep them alive and well and joyous unless supplemented by a rational use of food, clothing, fresh air, and pure water.

If Government aid is necessary to bring health out of disease and squalor, it should not be withhheld, but good results, if obtained, will scarcely continue unless the Indian parents exchange indolence for industry and are awakened to the use and beauty of personal and environing cleanliness.

This campaign for better babies, for the rescue of a race, calls for redoubled energy and zeal throughout the service, for it means personal work and tireless patience. It is a well-nigh stupendous task, but will be a glorious one if we can make successful headway.

I believe that the high aspirations and missionary spirit generally prevailing among our field employees are a guaranty of substantial and lasting achievements, and I hope and believe we shall have the quickened cooperation of all denominational agencies, religious missionaries, and mission schools having special interest in the Indian's spiritual welfare, and whose priceless labors, luminant with self-sacrifice and religious fervor, have done so much for the red man. We shall all, I am sure, exert an irrestible union of effort.

The educational propaganda against disease must, of course, be steadily increased and strengthened. Our Indian schools, where so many of the rising generations are assembled, are well organized and should be a mighty instrumentality for health and higher ideals of life. In their education of girls, I hope to see added emphasis given to such subjects as home nursing, child welfare, and motherhood, the sanitation, arrangement, and management of the home, and that nothing reasonable shall be spared to fit every Indian girl for intelligent housekeeping and for attractive home making.

The campaign thus started has developed widespread interest in this work, and almost unbelievable results have been secured. Women's meetings are held frequently with lectures on various child-welfare topics by the physicians, field matrons, and others. Little mothers' leagues have been formed among the school girls, and numerous other activities for the purpose of promoting the welfare of the Indian baby have been organized on the reservations. At nonreservation boarding schools special emphasis has been given the instruction of the older girls in nursing, hygiene, sanitation, and the care of children, it having been demonstrated that this teaching

is often reflected in the Indian homes through the returned girl students, while the children, who soon become the wives and mothers of the race, promptly and greatly profit thereby.

At all Indian Service hospitals every effort is made to provide for the Indian mother during childbirth and to bring to the hospitals every such case as may not have proper home surroundings. To the greatest extent possible those mothers who are not cared for in hospitals are assisted by the physicians or field matrons, and, as far as facilities will permit, a systematic follow-up system is maintained for the benefit of all newborn infants.

At many of the Indian fairs last fall a baby show formed a prominent feature of the exhibit, and it is planned to have a baby show at every Indian fair to be held this year. These contests have created much interest among the Indians, and in a number of instances at fairs where white and Indian babies competed Indian babies won the first award.

On the Blackfeet Reservation a most aggressive effort has been made to improve insanitary Indian homes. A special physician and a woman supervisor spent several months there in a house-to-house canvass, and with the aid of the field matron and assistants have "cleaned up" the Heart Butte district. The Indian homes there have been cleaned, whitewashed, and repaired, and all cases needing medical attention have been placed under treatment. The Indians have shown interest in this work, and it is believed that a permanent improvement has been made.

Homes of tubercular Indians are placarded, and cases which can reasonably be expected to benefit from sanatorium treatment are sent to the several sanatoria.

Reports from these sanatoria are very encouraging and show that among Indians, when placed in a proper environment, the disease, in a reasonable number of cases not incomparable to similar conditions among whites, can be arrested.

Hospitals have recently been completed or are now in course of construction at Carson, Pima, Mescalero, Navajo, Cheyenne and Arapaho, Turtle Mountain, Blackfeet, Choctaw-Chickasaw, Crow Creek, Hoopa Valley, Jicarilla, Spokane, Cherokee, San Juan, Tohatchi, and additions at Genoa and Crow.

Constantly increasing correspondence concerning health matters shows the very great interest which has been aroused. Educational and publicity measures to keep up and increase interest in sanitation have been taken. Press dispatches from the Public Health Service and the National Association for the Study and Prevention of Tuberculosis are made use of in the Indian school journals. Individual letters are written to tubercular cases urging them to take advantage of the means offered for their relief, and all employees of the service are urged to lose no opportunity to exploit the value of preventive measures. Medical journals have been supplied to physicians, and special medical pamphlets have been widely distributed.

At all of the institutes held during the summer health matters were especially emphasized. Practically all of the reservation and school superintendents attended these meetings and there carefully prepared reports on vital statistics developing the startling fact that on nearly all of the reservations there had been more births than deaths during the last year. These institute reports are not available for this publication, but they have come to me in such way as to be dependable.

[Extract from commissioner's report, fiscal year 1917.]

HEALTH.

The health problems in the Indian Service are concerned with tuberculosis, trachoma, infant welfare, and epidemics of contagious diseases.

Tuberculosis.—The conditions which are met in the solving of the tuberculosis problem are the tendency of many of the Indians to neglect seeking the physician's aid until the appearance of warning symptoms, such as hemoptysis, the disinclination of many of the Indians to accept the white man's methods, failure to continue treatment long enough in many instances to effect a cure, and the neglect in some instances of observing the principles of modified quarantine with respect to young children. Strenuous efforts have been made to improve the sanitary conditions bearing on this question, and throughout the year all health employees have endeavored to improve conditions in the Indian homes, institute measures looking to the separation of open cases from others, especially where there are young children, and the treatment in sanatoria of all cases which may reasonably be expected to benefit from sanatorium treatment. A stay of considerable duration in a sanatorium has been found to be of great educational value, and the Indian reacts very well to this form of treatment. The sanatoria are certainly a success, and the demand for enlarging the institutions

now in existence and the establishment of further sanatoria far exceeds the supply of available funds. The Indians are realizing more and more the value of the sanatoria, and many of them now have waiting lists. This fact indicates the value of the educational campaign which has been waged consistently during the past few years.

Trachoma.—The difficulties met with in the campaign against trachoma are the foci of the disease among the older Indians, which results in the constant stream of new cases entering the Indian schools, the disinclination on the part of many of the older Indians to submit to treatment for a long enough time to effect a cure and the painful nature and long duration of the treatment.

The corps of special physicians have accomplished a great deal not only in education of the members of the medical fraternity who have recently entered the Indian Service, but in the operation and placing under treatment of many of these older Indians. The returned students, who have experienced the beneficent results of trachoma treatment, have been a large factor in the dissemination of information concerning this disease among the older Indians.

The pupils in the day schools and the boarding schools all receive compulsory treatment for trachoma, and it is now a common occurrence to receive reports from the eye specialists that the disease in the schools they visit is under control.

Epidemics.—There have been rather numerous epidemics during the last fiscal year of smallpox, diphtheria, rabies, measles, and whooping cough. The handling of these epidemics presents greater difficulties among the Indian population than occurs among white people, owing to the fact that many of the Indians do not understand the need for quarantine. Some of the diseases cause a much higher mortality among Indians than among whites, more especially measles, in the epidemics of which there has followed a high percentage of pneumonia. Smallpox early in the year broke out among the Navajos, of whom there are in the neighborhood of 25,000 in northern Arizona, and before the cases were discovered there had been a rather wide exposure. This was due to the unfortunate shortage of physicians, partly due to the demand of the War Department. However, a medical supervisor was immediately sent to take charge of the situation, and wholesale vaccination was started and detention camps established. Satisfactory progress has been made, and it is believed the disease is under control. The Navajos have learned the value of vaccination, but like many white people they are likely to wait until danger is present before protecting themselves. Sanitary preparedness is in order, and Indians are becoming more and more amenable in this respect.

"*Save the babies.*"—Continued and vigorous effort has been the watchword in the campaign for better health conditions among children, especially the young infants, among whom the mortality has been so great. Results in this direction have been surprisingly gratifying, and much has been accomplished. At the Indian fairs last fall a "baby contest" formed a prominent part in the program, and great interest was manifested by the Indian mothers. They were so successful that it is planned to conduct them on even a more elaborate scale this year, and to this end standard score cards have been secured upon which the children contesting will be registered. They will be carefully graded by the physicians and the cards of the babies having the highest scores will be sent to Washington, where suitable certificates will be issued to the parents.

One of the most important factors bearing on the health problem among the children is the education of the mother in the proper care of her offspring. To this end emphasis has been laid upon the necessity of bringing every possible case of confinement to the agency hospitals for the lying-in period. This policy has resulted not only in giving the mother requisite instruction in the care of herself and her child but has given to many Indian children a start in life that would have been impossible had their birth been consummated under the old unhygienic environments.

[Extract from commissioner's report, fiscal year 1918.]

The health work of the Indian Service throughout the past fiscal year was conducted under increasing difficulties, owing to the patriotic response of many of our physicians and nurses to their country's call, yet, due to the impetus given the campaigns on the various reservations during the immediately preceding years, a definite progress has been recorded.

All our health activities are planned and promoted upon the principle that permanent results in these matters must come through popular education in sanitation, ventilation, care of children, care of the sick, domestic economy, etc. Despite the loss of many health workers this line of endeavor has been faithfully carried forward

to the greatest possible extent and much good has been accomplished. Another hardship which has been keenly felt is the greatly increased prices of all supplies, particularly medicines, drugs, and surgical instruments, the cost of which it has been necessary to meet with appropriations no larger than those of former years or not increased proportionately to the advanced cost of the material for the purchase of which they were intended. A patriotic spirit of endeavor, however, has actuated our employees, and a faithful attempt has been made to secure the best possible results with the facilities available.

Tuberculosis and trachoma continue to furnish two hard problems to solve in upbuilding the health of the Indian race. Notwithstanding the loss of physicians, it has been possible to operate all of our sanatoria during the year, and many cases of tuberculosis have been treated therein. Additional facilities have also been provided, and in some instances existing institutions have been enlarged, where the need was imperative, either by limited new construction or through the purchase of buildings already completed, or by remodeling.

The endeavors to eradicate trachoma have suffered principally from the loss of specialists who were employed particularly for this work. These losses, however, occurred during the latter part of the fiscal year, so that the work was continued with but little abatement, and much has been and is being done to suppress this disease among the Indians. It is not uncommon to find trachoma entirely under control and practically eradicated at many of the boarding schools, due to the effective treatment which is possible when suitable control can be exercised over the cases. The greatest difficulty in this work exists among the older infected Indians who are more difficult to reach and treat, and as a consequence remain as foci for the dissemination of the disease. Accordingly everything possible is done to place them under treatment where feasible and to educate them in cleanliness in order to prevent contagion.

Continued emphasis has been laid upon the better-babies movement, which was actively inaugurated year before last, and which demonstrated such remarkably immediate and gratifying results. This campaign has now become a regular feature of the reservation activities and will continue to receive the earnest attention and efforts which it merits.

A number of schools and reservations were visited during the past year by epidemics, including smallpox, "liberty" measles, pneumonia, and acute influenza. Measles is always dreaded among Indian children, a common sequel being tuberculosis, and for this reason all possible steps were taken to prevent the spread of the disease and to give those infected proper care and aftertreatment. Fortunately, the epidemics for the most part have not been of a severe nature and, as a rule, serious results did not follow.

Among the Navajo and Hopi Indians, in Arizona and New Mexico, considerable trouble has been experienced with smallpox, which, though of a mild form, became epidemic among these people during the last year. Vigorous steps were immediately taken to suppress this contagion, special physicians and the medical supervisor being detailed for the purpose of conducting a campaign of vaccination. Hundreds of Indians were vaccinated, and it is now known that the efforts of these physicians, which were augmented and continued after their departure by the regular medical forces on the reservations, have placed the disease under control. Of especial interest in this connection is the campaign of vaccination conducted by the supervisor of hospitals among the Hopi Tribe living upon the Moqui Reservation. These people dwell in communities and for that reason are more amenable to quarantine and control than the nomadic Navajos. The supervisor in his report upon this work states that every Hopi Indian not presenting a history of recent successful vaccination, or who had not had smallpox, was immunized in this campaign, and he is of the opinion that the whole tribe has been rendered immune.

At the Haskell Institute during the past spring a severe epidemic of influenza or, as observed in many parts of the United States, a combination of streptococci and influenza baccilli, accompanied by pulmonary complications, suddenly developed, resulting in several deaths among the pupils. For the purpose of assisting the local medical force in handling this epidemic and for the purpose of investigating its source a special physician and nurse were immediately detailed to the school, and the services of an epidemiologist from the Public Health Service were secured. Prompt measure succeeded in keeping the mortality down to a minimum. High winds and dust storms were prevailing at that time in the country surrounding this school, and the consensus of opinion seemed to be that the infection was wind-borne.

Altogether, the health propaganda of the Indian Bureau is rendering its most righteous service. The perpetuation of the race is a first consideration. Education and the protection and accumulation of property are greatly to be desired; to this end we are exerting ourselves to the uttermost, but everything is necessarily secondary to life.

[Commissioner's report, fiscal year 1919.]

HEALTH.

If the figures of the epidemic of Spanish influenza could be deleted from the statistical tables and the sorrows of that visitation effaced from memory, the health record of the Indians of the United States for the fiscal year 1919 could be written as normal, notwithstanding the fact that the facilities of the service were greatly impaired by war conditions. The corps of physicians which at the time of the signing of the armistice was scarcely one-third of its normal numerical strength, has been undergoing rehabilitation, and at the close of the period covered by this report it was gradually approaching its full complement. The nursing corps is still greatly depleted and many positions are being filled temporarily by practical nurses.

During the period of the war on some reservations physicians were required to take over the work of two or three other medical districts; in certain localities no medical service could be maintained other than the supplying of simple remedies.

To relieve the situation incidental to the shortage of physicians and nurses the Civil Service Commission waived the maximum age limits and changed the form of examinations from assembled to nonassembled. Through this courtesy and by aid of employees who were willing to perform extra duty it was possible to preserve in some form the integrity of the different health services even at the most remote stations.

During the epidemic of Spanish influenza a plan of cooperation was effected between the Public Health Service and the Bureau of Indian Affairs, by which the emergency was well met, and I desire to express appreciation for the timely assistance rendered by the Surgeon General.

The Chilocco School was a notable example of the efficient control of the influenza epidemic, not a single case having developed among the more than 500 Indian students and large corps of employees.

While every employee of the Indian Service, by virtue of his position and duties, is concerned with health, which is not secondary to any other activity, those designated as health supervisors, special physicians, special nurses, agency and school physicians, general nurses, field matrons, and field dentists are charged with the principal duties and responsibilities pertaining to the physical welfare of the Indian people.

The health supervisors visit the various reservations and schools for the purpose of advising with the other health employees and gathering information for the office; special physicians are employed primarily to combat trachoma, but it is required that they shall be qualified specialists in diseases of the ear, nose, and throat, as well as in diseases of the eye. In addition, they must be prepared to act as epidemiologists, for they are frequently detailed to take charge of local epidemics of dangerous communicable diseases. Special nurses are attached to the service of special physicians. Agency and school physicians, whether employed under contract or regular appointment, perform the duties indicated by their designations, and general nurses are nurses employed at the various schools and hospitals throughout the service. Field matrons have a multiplicity of duties. Improvement of home, educational, moral, sanitary, environmental, and social conditions among the Indians is to be regarded as the primary object of their work. Though it is the duty of every employee of the service, regardless of his position, to do everything possible to contribute to such improvement, both by effort and by example, the field matron, whose duties bring her into the closest relationship with the family, especially the mothers and daughters of the home circle, is particularly charged with the responsibility of developing higher standards of living, of inculcating the desire for progress and of evolving plans to make the home more attractive. Field matrons are assigned a leading part in the organized efforts to save the babies and keep them well, and they also act as field nurses in combating tuberculosis, trachoma, and other diseases.

The traveling field dentists are among the most useful employees of the service. Their professional aid at the schools and reservations largely promote conditions among the pupils and adult Indians now generally regarded as definitely essential to bodily health.

The facilities for the treatment of the sick have increased with the progress of medicine. From the primitive dispensary clinics of early days there have developed the hospitals and sanatoria of the present, with their laboratories and equipment. The guess methods of diagnosis have given place to scientific tests, and the former occasional word of admonition on health has been superseded by graded instruction in hygiene and physical culture which extends through all grades as outlined by the course of study. The hope of the Indian—his development, physically and industrially—lies in his educational opportunity.

Since sanitation is a compulsory subject of the curriculum of instruction, in the course of time the principles taught will blend with the daily life and conduct of the people and exert a transforming influence upon their future.

With the addition of trachoma as an exception, although this disease also prevails among the white people, the health problems as they occur among the Indians are the same as those that pertain to rural communities throughout the country, and the needs are the same—better housing conditions, greater industrial prosperity, better water supplies, and all the factors of protection that make for health and longevity. Our efforts cover the whole range of sanitary and medical prevision and aid, beginning with prenatal care and extending on through life to the care of the aged and finally to the burial of the dead. While each duty is important, I would, so far as practicable, emphasize as the most important those things which prevent disease by increasing the resistance of the body cells through proper nutrition and well-ordered living, thus making it possible for one who may not have escaped infecting organisms, through the strategy of knowledge and the tactics of hygiene, to find protection in the defenses of nature.

So, believing proper nutrition to be one of the principal armaments of preventive medicine, I have sought to encourage and promote Indian industry in general and Indian farming in particular; I have tried to make agriculture and thrift the pillars of a health arch of which the keystone shall be sanitary education. Poverty and disease are handmaids of destruction and despair, and any health policy designed to affect a race must make provisions to overcome these conditions and offer to the people prosperity and hope, encouragement and comfort.

I have purposely avoided including comparisons in this report, for on account of effects of the epidemic of Spanish influenza they would be of very little value in studying the general conditions of health. Statistical figures appear in the various tables under appropriate headings, and those pertaining to the epidemic will be incorporated in the reports of the United States Public Health Service and in the bulletins of the Bureau of the Census.

In general it may be said that apart from the invasion of the Indian population by the great pandemic, the year covered by this report showed progress in health matters; the number of hospitals was slightly increased, the field-matron service and the medical corps strengthened.

I have very definite plans for the expansion of the health service for the next fiscal year, subject to congressional appropriations. As will be recalled, two health drives operated in the Five Civilized Tribes during the months of July, August, September, October, and November of 1917. One of the drives was carried on among the Cherokees and the other among the Choctaws.

From my knowledge of the health conditions of the Indians of that jurisdiction, gained from reports and observations, and from a study of the statistics of those drives, I am convinced that a permanent health organization of sufficient proportions to extend its influence to every restricted Indian of that superintendency is needed. The immediate purpose of those campaigns was to improve the very bad conditions, and instructions were given to those engaged in the work to give their first attention to home betterment, to sanitation and ventilation, and to hygienic relations bearing upon the prevention of tuberculosis and other communicable diseases.

Now that the war is over I intend to renew my request to Congress for the funds to complete and make effective these preliminary campaigns for health betterment among the Choctaws and Chickasaws.

With a view to restoring and strengthening our health work, and especially the service of field matrons, I issued near the close of the year an appeal to all employees, in the hope that the sentiment and views expressed would, under more promising facilities, lead to better organization and corresponding results.

[Taken from commissioner's report for fiscal year 1920.]

HEALTH.

The health of the Indians presented no new or unusual problems during the year. In addition to influenza, which manifested itself as a disease of much lessened virulence, diphtheria, scarlet fever, measles, and other diseases of childhood, were reported on many of the reservations, but in all of them the mortality was low.

Outbreaks of smallpox occurred on a number of reservations, but its form was mild, and each instance of epidemic was easily controlled by the usual methods of quarantine, isolation, and vaccination. The Indians have had so many demonstra-

tions of the efficacy of successful vaccination that in the presence of an epidemic our medical officers have but little difficulty in persuading them to submit to the operation. Once a great scourge, smallpox no longer causes a panic of fear when it breaks out among Indians.

Tuberculosis.—Ever since diseases of Indians first became the subject of careful study, tuberculosis has been the most serious found among them. It has been and still is responsible for more deaths than any other disease.

The development of our system of sanatoria, a more carefully prepared and better dietary, the dissemination of knowledge relating to the disease, regular weighing of pupils, frequent medical inspection, and improved medical and nursing personnel, with increased interest in health, have all operated to stamp the disease out of our schools.

Tuberculous children now have sanatorium facilities where those physically able may have the benefit of educational opportunities under the medical supervision of specialists.

The campaign for the eradication of the disease has been as far reaching in its results as has that among our white population.

During my administration, Indian school children have been so thoroughly drilled in the cause and prevention of tuberculosis that I have no hesitancy in saying that they have a greater familiarity with this essential knowledge than have the same number of children among any other people.

Trachoma.—Trachoma, an eye disease of such terrible aspect that immigrants suffering from it are met at our ports of entry and excluded from the United States, is still prevalent on the reservations, notwithstanding the remarkably successful campaign waged during the past six or seven years.

While the disease in its old-time virulence is seldom seen in the schools less progress has been made toward its eradication among adult Indians on the reservations. The disease is essentially a chronic one, requiring prolonged treatment, which is exceedingly painful. Next to tuberculosis, trachoma presents our most difficult disease problem.

When I assumed the office of Commissioner of Indian Affairs in 1913, I made a careful study of health conditions among Indians, with special reference to the control of tuberculosis and trachoma. Sanatoria capacity was greatly increased, and a campaign inaugurated for better homes and better living conditions, particular attention being paid to the care of the babies. Literature relating to the cause and prevention of both diseases was distributed, a corps of special physicians and nurses qualified in the care and treatment required by these diseases was developed from our service, and such measures as are approved by the higher medical authorities were applied to the extent of available facilities. The results have been commensurate with the time, money, and efforts expended.

The medical and nursing corps, almost completely dismembered by the war, have been gradually reconstructed. The number of physicians is approaching pre-war strength. It will be difficult, however, to secure a full quota of nurses until more liberal appropriations enable us to meet the competition of other branches of the Government service.

Notwithstanding the scarcity of physicians, capable eye specialists have been employed in each of the medical districts. Were qualified men available, however, our force of specialists could be more than doubled to meet the calls from the reservations. The same applies to the traveling dentists, who have had a most successful year. The demands made upon the services of these men would justify also the doubling of their number.

Changes in the force of field matrons have not been many. The knowledge of nursing acquired by these women in the great influenza epidemic has enabled them in the absence of regular trained nurses to render invaluable service during the recent epidemics and has qualified them to be of much greater assistance to Indian women in their homes.

Notwithstanding temporary hindrances the health of the Indians is better cared for to-day than at any time in the history of the race. More Indian families than ever before are living in permanent and comparatively modern houses and are observing the simple rules of health which ward off many forms of disease. As the younger generation carries to the reservation communities the knowledge and practice of hygienic living acquired in the schools a new vigor, with new hopes and ambitions, is manifested in steadily transformed habits, customs, social observances, and industrial pursuits. The Indians are to-day comprehending much of the science of health and are building racial vitality to meet the necessities of the life and civilization in which they must participate.

[Extract from commissioner's report, fiscal year 1921.]

The year covered by this report has shown an increase of population, an excess of births over deaths, and has compared favorably with other years respecting the health of the Indian people. There have been epidemic invasions on several of the reservations, and, owing to a shortage of regular physicians and nurses, progress against tuberculosis and trachoma was not entirely satisfactory.

Prevention of disease.—As the line of progress advances society in favored communities seeks more and more to advance itself through appeals to all agencies that may offer protection and contribute to its welfare. The time has come when preventive medicine, with its coadjutants, philanthropy and social uplift, must be applied to the solution of the health problems of the Indian Service. Heredity, which may be defined as the genetic relation between successive generations, is now recognized as an important factor of preventive medicine. Its laws should be taught in the Indian schools, particularly with regard to their application to health. Education and environment have but limited power to improve an imperfect basis of human life, but diseases and impairments that can not be cured may be prevented.

The physician, as well as the sanitarian, is helpless in the presence of many deplorable conditions, both in the individual and in society at large, which are inherited from ancestors—conditions which might have been prevented, but can never be entirely remedied when they exist. Dr. Oliver Wendell Holmes said more than a half century ago that the time to begin the training of a child is a hundred years before its birth. The best protection that one can have against disease is inherited vital energy manifesting itself in healthy organic cells that will respond to every favoring force of habit, environment, education, and training that may encompass them, while at the same time offering stern resistance to all inimical influences and factors that beset them.

Medical policy.—The Indian Service countenances no fads and trusts no fanciful theories; its policy is to make use of all scientific knowledge which it can command to secure to future generations of Indians the best of all birthrights—the right to be well born and to possess sound minds in sound bodies.

Health education.—If medical service for the Indians consisted only of the dispensing of medicine to those who are ill, the duties would be very simple notwithstanding their importance. But the Indian medical service is a social uplift service allied inseparably with its educational and industrial activities.

The present administration is seeking to discourage a perfunctory response to duty and to foster a real, live, purposeful policy and determination to restore to a race its pristine health and virility by means of the application of the laws of preventive medicine, operating through education, social uplift, and constructive science, as applied to nutrition, hygiene, and the relations of all the agencies under control that may improve or impair the racial qualities of future generations of Indians, either physically or mentally. The purpose of the Indian Service is to bring about gradual and permanent improvement in the physical, mental, and moral nature of every Indian who may be influenced by the factors and conditions that promote favorable change. The hope of the Indian race lies in the children, and what we wish to appear in them must be taught in their schools.

Diseases.—The Indians are subject to the same diseases as white people. They have more trachoma and perhaps more tuberculosis, but there are fewer venereal diseases, less diphtheria and scarlet fever, and, as a rule, pneumonia is not so prevalent among them as it is among the whites. The problems of treatment and care of the Indian, however, differ in many respects from the treatment of white people. Tact and a knowledge of Indian nature, with experience in the use of preventive measures, are as essential to the success of the service physician as an intimate understanding of medicine and surgery, and in this direction he may be greatly aided by the efficient field matron whose duties closely relate her to the family, especially the mothers and daughters, and who in her work for the improvement of home conditions is often able to locate many cases of disease and by skillful sympathy obtain the consent of the patient for medical treatment.

Epidemics.—Several reservations, particularly of those in the Southwest, have had visitations of measles, smallpox, chicken pox, mumps, scarlet fever, and influenza in an attenuated form. Some cases of sore throat with infection have also been present in a few communities.

Several deaths resulted from bronchial pneumonia following measles, but there were no fatal issues from any of the other diseases named in the preceding paragraph.

The epidemic situation with respect to these diseases was practically clear at the close of the fiscal year.

Typhus fever.—Typhus fever appeared on the San Juan Navajo Reservation about November 20, 1920, by introduction from a neighboring republic. The disease occurred among the Indians, and, with the exception of Doctor Davis, a medical missionary of the Presbyterian Church, whose station was at Red Rock, and Doctor Graffin, agency physician at Shiprock, both of whom died, it has been confined to the Indians, there being 52 cases with 21 deaths, exclusive of the two cases among whites.

A number of physicians and nurses were detailed to combat the epidemic, and the United States Public Health Service effectively assisted, its representatives in the field being Passed Asst. Surg. C. E. Waller, State health officer of New Mexico, and Dr. Charles Armstrong, passed assistant surgeon.

The last case was reported on June 13, 1921.

The educational value to the Navajos of the campaign against typhus has been greater than the money outlay.

Organization.—The health service at the close of the year consisted of one chief medical supervisor, six special physicians (eye, ear, nose, and throat), seven traveling field dentists, about 175 stationed physicians, including contracts, approximately 100 stationed nurses, 6 traveling nurses, and 87 field matrons.

It has not been practicable to fill all the nursing positions with trained nurses, but as they become available practical nurses will be replaced with graduates.

APPENDIX D.

HISTORICAL SKETCH OF THE UNITED STATES INDIAN MEDICAL SERVICE.[1]

[By Lawrence W. White, M. D., Robert E. L. Newberne, M. D., and Joseph A. Murphy, M. D.]

INTRODUCTORY.

The following quotation from "Indians of To-day" is so accurate a description of the conditions among Indians before their health was a subject of interest that it may well serve as an introduction to this sketch:

"In the old days, when the Indians roamed free, they appeared to those who met them a singularly healthy race. Coughs and colds were common, to be sure, and there were occasional cases of consumption. Doubtless there was more or less suffering from rheumatism. Eye troubles caused by dust, smoke, and, oftenest of all, overstrain, were not infrequent, and these were apt to be very troublesome from lack of cleanliness. The afflicted Indian usually kept a wet rag over his eyes, and this rag was never changed nor washed. Acute digestive troubles, resulting from overindulgence in eating, were common among the children, while adults crippled by accident or by injuries received in war were seen very often.

"It is true that in those old days one lived among the people without giving any special heed to such matters as their condition of health, and that only those cases of sickness were noticed which forced themselves upon the attention of the dweller in the camp. Yet often one heard the drumming of the 'doctor,' who was working over a sick child, and not infrequently the wailing cries of women resounded from the hills near the village as they uttered their plaintive mourning for those who were gone."

LAWS REGULATING TRADE WITH INDIANS.

Under British laws trading with the Indians had assumed respectable proportions, and the first approach to a trust had been built up in America by the Hudson Bay Co. France and Spain at the close of the War of the Revolution shared with our Government the control of the area now embraced in the United States. Each of these foreign countries was interested in Indian trade, but France was the most active and the most aggressive.

In the colonial days, and for some time after gaining their independence, the people of the United States were concerned in the affairs of the Indians, principally for the purpose of self-protection and for the advance of trade, notwithstanding the fact that nearly all colonial charters had been granted for the purpose of civilizing the Indians, the expression used being:

"To reduce the savage natives by gentle and just manners to the Love of Civil Societie and Christian Religion."

1790: By an act of July 22, 1790, Congress inaugurated a system of trade by which no person was to be permitted to carry on any trade or intercourse with the Indian tribes without a license for that purpose given under the hand and seal of the superintendent of the department.

1796–1822: In addition to licensed traders, Congress, by act of April 18, 1796, authorized the establishment of trading houses for the purpose of carrying on a liberal trade with the Indians within the limits of the United States, the business to be without profit, and providing also for the appointment of agents to conduct such trading bases under the direction of the President. This act, from time to time as it expired by limitation, was revived by Congress, and in 1806 the office of superintendent of Indian trade was established for the term of three years, which term was extended three years in 1809, again three years in 1811, and from time to time thereafter until 1822, when the law was permitted to expire and the office of superintendent of Indian trade, with the system of trading houses, was abolished.

[1] Compiled from the annual reports, records of the Bureau of Indian Affairs, and various writings pertaining to the Indian Service.

CREATION OF THE BUREAU OF INDIAN AFFAIRS.

1824: The law creating the position of superintendent of Indian trade and establishing a system of Government trading houses having expired by limitation in 1822, the War Department was left without any sort of Indian organization or Indian activity other than that of Indian killing. But the necessity of having such an organization became more evident each day, and in 1824, two years after the expiration of the Government trading act, the Secretary of War established the Bureau of Indian Affairs, and President John Quincy Adams appointed as its first chief Col. J. L. McKenney, who had held the position of superintendent of Indian trade under President Madison at the time the law expired, thus making the Bureau of Indian Affairs the direct successor of the office of superintendent of Indian trade.

1832: Under date of July 9, 1832, the office of Commissioner of Indian Affairs was created, and the present Bureau of Indian Affairs was organized. In other words, the Bureau of Indian Affairs was conducted by the War Department for eight years before it was formally organized by Congress, the title of the head of the bureau being Chief of the Bureau of Indian Affairs until it was changed to Commissioner of Indian Affairs at the time of the official organization.

CREATION OF THE DEPARTMENT OF THE INTERIOR.

1849: In 1849, 25 years after the establishment of the Bureau of Indian Affairs, the Department of the Interior was established, and the supervising and appellate power relating to the Bureau of Indian Affairs, passed from the Secretary of War to the Secretary of the Interior.

NO IMPORTANCE ATTACHED TO PHYSICIANS.

In all the reports relating to trade matters and the accounts of the troubles of the agents and other persons engaged therein, there is very little mention of physicians.

The following quotation from the Memoirs of Colonel McKenney, first Chief of the Bureau of Indian Affairs, will serve to illustrate the apparent unimportance attached to the health side of the Indian work in those early days, this man and others making important expeditions and travels equipped with every helper and convenience except a physician:

"* * * My tent having been meanwhile put up, all was made right for the night. Presently I heard the barking of a dog. Stepping from my tent, and looking in the direction from which it came, I saw in the distance, amid the thick foliage, a light. Advancing a little, I heard an Indian's drum. I knew from the beat upon it, what it betokened. Somebody was ill, and the medicine man was engaged with his incantations and drum, and mummeries, to drive out the bad spirits.

"Taking along with me Ben and an interpreter, I wended my way through the dark and tangled undergrowth, till presently a full glare from a flambeau burst upon me, and the beat of the drum fell more distinctly upon my ear, confirming my first impressions. The dogs had now all come out in full cry, and a tall Indian revealed himself by the torchlight at the door of the wigwam, accoutered in the habiliments of his tribe, with a rifle in his hand. He hailed us, and received from the interpreter, in his own language, the answer that we were friends, and on our way to the great treaty which was soon to be held at the foot of Winnebago Lake. The dogs were called in, and we met and shook hands with the Indians. The pipe was lighted, handed round, and smoked.

"Upon a mat much worn, with nothing but the ground beneath it, lay a fine looking Indian woman. On one side, near her head, sat, in pensive mood, a middle-aged man, and beside him a young man. On the other side sat two girls, and at the head stood the medicine man, thumping his drum, and performing those mystic rites that belong to his craft. My sympathies grew strong for the sufferer, till finding it impossible to remain longer as a spectator of such a scene, and not employ what skill I had, and my means to save life, I determined to interfere.

"I knew there was hazard in the attempt—for I should have to encounter, first, the ire of the medicine man, it being no greater calamity to deprive such a one of his occupation than it was in the days of Shakespeare for Othello to lose his; next, should the patient die on my hands, there might be an account to settle with the husband, who would have no difficulty in arriving at the conclusion that she had been killed by me. But my mind was made up; so I said to my interpreter, 'Tell this man (the woman's husband) if he will stop that drum, and allow me to medicine his squaw, I think I can make her well.' The words were scarcely out of the interpreter's mouth, when the medicine man threw upon me from his black eyes, which were shining amidst the torchlight of the wigwam, and exceeding it in brightness, a look of fierceness, which nothing but my previous intercourse with the Indians could have enabled me, without great apprehension, to endure.

"The husband hesitated—and then looking at me, then at the medicine man, and then at his suffering wife, said, 'I will be glad,' whereupon making the signal, the drum was hushed, and the insulted operator, with a scowl at me, rushed from the wigwam, in all the fiery temperament that such a stroke at his art was so well calculated to enkindle.

"A brief examination of the case satisfied me that there was no time to be lost, and that the remedies must be of the most powerful class. My first impression was that the patient was laboring under puerperal fever; but a further testing of the symptoms satisfied me that it was pleurisy. The inflammation was great, and the suffering extreme. Blood-letting gave partial relief. Warm applications, in the form of fomentations, not being at hand, I directed a hole to be dug at the door of the wigwam, and filled with water; meantime a large fire was kindled and stones were thrown into it which, on becoming hot, were put into the water, till, by this means, it was sufficiently heated, when the patient was drawn down upon her mat, till her feet and legs were immersed knee deep. Blankets from my stores were then wrapped round and over her. In five minutes the perspiration literally rolled down her cheeks. Meantime, I directed Ben to make a good bed out of blankets, with a pillow of the same, when she was drawn back again, and placed upon it, her ragged mat of a bed being left at the door of the wigwam and then thrown away. Her symptoms were very greatly improved, which, added to her more comfortable bed, caused this poor destitute daughter of the forest to look volumes of gratitude, though without uttering a word. Twelve grains of calomel that night, and a dose of magnesia in the morning, concluded the treatment, which I took care to sustain by light diet in the form of tea, with crackers broken into it.

"All being so well, I left in the afternoon of the next day, placing by her a nourishing diet, with a superadded bottle of sweetened water, dashed with claret wine. Tea and crackers bottled, which she was to warm before taking, was to be her food till what I left was gone, when a certain portion of the wine and water was afterwards to be taken. Dog soup and fish were prohibited until she felt very hungry, and then these were to be eaten in moderation. This being all arranged, I embarked."

Until the Bureau of Indian Affairs, which is 25 years older than the Interior Department, was placed under that department, there was no occasion to list physicians as a part of the necessary personnel; for when a doctor was needed the Army surgeon was the most accessible. In most cases in which a medical man was needed to accompany an expedition he could be easily picked up, since it was not necessary that he should be graduated from a medical college.

The only health order on record concerning Indians while they were under the War Department is that in removing the Indians from one country to another, care should be taken that the best sanitary conditions prevailed, and that the health of the Indians be carefully guarded.

However, after the Bureau of Indian Affairs was placed under the Interior Department, and questions other than trade began to be considered, and more employees had to be sent out away from civilization, the need for an Indian medical service began to unfold, although it must be acknowledged that at first the doctor seemed to be taken along for the accommodation of the agent and his family and for the employee force generally, with small consideration for the Indians. In fact, in those early days, only the most venturesome spirits would accept position of physician and brave the isolation and dangers of the remote Indian reservations.

On ration days and on other special occasions the doctor would demonstrate his ability before the Indians, showing how quickly he could extract teeth, open boils, and perform minor surgical operations, and finally the Indians, or at least some of them, would want the white doctor; thus little by little demands grew until the physician was regarded as having a rightful place in the list of employees.

NEED FOR MEDICAL WORK AMONG INDIANS REVEALED.

1865: The need for medical work among the Indians at that time may be realized by referring to the conclusions reached by a senatorial committee after reading the report of investigation made by Mr. Doolittle in 1865:

"First. The Indians everywhere, with the exception of the tribes within the Indian Territory, are rapidly decreasing in numbers from various causes: By disease, by intemperance, by wars among themselves, and with the whites; by the steady and resistless coming of white men into the territories of the West, which, confining the Indians to still narrower limits, destroys that game which, in their

normal state, constitute their principal means of subsistence; and by the irresistable conflict between a superior and an inferior race, when brought into the presence of each other. Upon this subject all testimony agrees."

In answer to the questions, whether the Indians were increasing or decreasing in numbers, and from what causes, Major General Pope said:

"They are rapidly decreasing in numbers from various causes: By disease; by war; by cruel treatment on the part of the whites, both by irresponsible persons and by Government officials; by the unwise policy of the Government, or by the inhuman and dishonest administration of that policy; and by the steady and resistless encroachments of the white emigration toward the West, which is every day confining the Indians to narrower limits, and driving off or killing the game, their only means of subsistance."

To the same question, Gen. John T. Sprague gave the following answer:

"The Indians are decreasing in numbers, caused by their proximity to the white man. So soon as the Indians adopt the habits of white men they begin to decrease, aggravated by imbibing all of their vices and none of their virtues. Other causes exist too numerous to be detailed in this paper."

General Wright gave his testimony to the same effect, as follows:

"The Indian tribes are rapidly decreasing in numbers, especially west of the Rocky Mountains, caused in some measure by the wars waged against them, and more particularly by the encroachments of the whites upon their hunting grounds and fisheries and other means of subsistence, and by the readiness with which they adopt the vices of the whites rather than their virtues; hence their numbers are rapidly diminishing by death and disease.

"The officers who have testified have had large experience in Indian affairs, and they are supported by the concurrent testimony of many other of the most experienced officers and civilians."

ORGANIZATION OF INDIAN HEALTH WORK.

1873: The year 1873 saw the first recognized steps taken toward organized effort in the interest of health and education among the Indians. In this year a medical and educational division was established in the Indian Bureau and continued to 1877. In spite of the urgent need and the fact that there was always a certain amount of medical service in the field, the medical division was discontinued until 1909, when it was revived by Commissioner Valentine.

The years following 1873, even up to the present time, have been years filled with urgent pleas from agents and commissioners and all persons associated with Indian work for more funds with which to provide health facilities. The commissioners seem to have been hampered mainly by lack of funds. Insufficient salaries have hindered the health work in the past as in the present.

1874: In 1874 only about one-half of the agencies were provided with a physician.

1878: In his annual report for 1878 the commissioner said:

"Hereafter persons employed as physicians on Indian reservations shall be graduates of some medical college and have the necessary diplomas. Heretofore persons have been employed who have assumed the responsibilities of physicians and the consequences were that they met with poor success in keeping down sickness as well as to cause the Indians to lose faith in the superiority of the white man's medicines and return to their former methods of curing their sick."

This difficulty was eliminated and the efficiency of health work among the Indians much enhanced later when, in 1890, the medical positions were placed under civil service, and applicants for such required to pass rigid examinations and prove graduation from some reputable college.

1879: The agent at Hoopa wrote to the commissioner in 1879 as follows:

"I have been unable to secure the services of a citizen physician for the salary offered ($900) and but for the kindness of Asst. Surg. C. E. Price, United States Army, post surgeon at Fort Gaston, the Indians would have been without medical care, and it is a notorious fact that the Indians throughout this country are fast being swept by disease from the face of the earth."

1880: Reports from commissioners, agents, and authors throughout the years following 1873 teem with calls for physicians, nurses, and hospitals. B. Harrison, member of the Indian Rights Association, in his "Studies on Indian reservations," in 1887, says:

"On some of the largest reservations which I have visited the Government makes no provision for a team or conveyance, or even for a single horse, for the use of the Government physician. As the Indians no longer live near the agencies it is of course impossible for a physician to visit them without a team. On most of the large reservations the character of the country is such that the Government physician needs

two good horses and a light strong wagon for his work. Some of the agents said an impression seemed to prevail at Washington that street cars and elevated railroad lines run all over the reservations. The benefit of sending a physician out without such supplies as are indispensable to his efficiency is most nominal. This matter should be looked into during the next session of Congress. There should also be a hospital established immediately at each Indian agency, with suitable buildings and supplies, for the benefit of Indians requiring such medical aid and nursing as can not be supplied in their cabins or lodges. I know of no object for which reasonable expenditures would be more helpful than the work of civilizing the Indians, or more humane than this, and I believe all the Indian agents concur in this view."

That same year the agent on the Colville Reservation urged the employment of more physicians and the establishment of a hospital there. This is a large reservation of the kind of which Mr. Moorehead observes that instead of 3 or 5 there should be 15 or 20 physicians employed. The total medical corps for that year for the entire service was 77.

HOSPITALS.

1884: In 1884 seven agents recommended the construction of hospitals upon their reservations and gave as their reasons that in order properly to care for the sick the Indian must be directly under the care of a physician or nurse, but, though the commissioner made the same recommendation in his annual report that year, no results were obtained because of lack of appropriation. That same year the superintendent of Indian affairs for Dakota made an urgent appeal for the construction of hospitals in the following language:

"The treatment of the sick in their homes is very unsatisfactory to a physician and prejudicial to the service, as medicines are rarely ever administered by the Indians as prescribed. This can only be remedied by having a hospital where the sick can be brought for proper care and treatment, and I would again recommend, as in my former annual reports, the early construction of a suitable building for that purpose at this agency.

"The health of the Indians during the year has been good. I think the number of those who apply for, and make use of, the white man's medicine is steadily increasing. Certainly we have heard much less about their medicine men the past year than heretofore. Their influence is still very great, however, and the agency physician finds it opposing him in all his practice, but especially in those cases that he is called to treat in the camps, when, as it happens, the patient is subjected to the severe treatment of the Indian doctor at the same time that the agency physician is prescribing for him. We can not expect the Indian to have confidence in the white doctor and his medicine unless he has been reasonably successful in his practice, and how can we expect him to be successful when his patients are made to pass through the ordeal the Indian medicine man imposes upon them, such as the beating of drums, the ringing of bells, the howling of Indians, and sometimes the internal application of some nauseous hurtful nostrum?

"I know of no better way to meet this difficulty than by the building of a hospital. This I have recommended in a former report, and I believe has been recommended by many other agents. Not only would the physician be enabled to treat his patients more successfully, but every Indian brought from the camp to the hospital would be thrown directly under civilizing and Christianizing influences."

1885: In 1885, as in fact every year was the same story repeated, eight hospitals were asked for by eight other agents, and two were established, one at Osage and one at Menominee.

1889: In 1889 the commissioner said in his annual report:

"It is high time that the medical branch of the Indian Service should be improved and brought abreast of the times, and placed on an equal footing with the medical departments of other branches of the public service. There is here a great field for improvement and the accomplishment of much good. There are annually expended thousands of dollars in the improvement and advancement of these Indians in other directions, but we seem to be content with the expending of a paltry few hundred dollars in their medical care and treatment, and there is no branch of the Indian Service, in my opinion, through which more can be accomplished for the education and advancement of the Indians.

"The life of a physician on an Indian reservation with poor accommodations, small salary, and few of the modern appliances and help for the practice of his calling, is dreary enough to all except to him who realizes the noble part he performs in helping to lift this people out of their superstitious regard for the grotesque rites of the medicine men. There is opportunity for a large exercise of the self-sacrificing spirit which is characteristic of the medical profession."

QUALIFICATIONS AND DUTIES DEFINED.

The commissioner in this same report defined the qualifications and duties of the physicians for the Indian Service, as follows:

"To be eligible to the position of agency physician the applicant ought to have a good general education, must be a regular graduate of some reputable college, and be actually engaged in the practice of medicine. He must be between 25 and 45 years of age, temperate, active, industrious, in sound health, and must possess a good personal and professional character. The application for appointment must be made upon blanks provided for the purpose, which will be furnished upon request. A copy of the applicant's diploma and of his license to practice medicine must be filed at the same time. Married men are preferred to those who are single.

"Attending to private practice or other business outside of the agency is prohibited, as it leads to endless complaints, and opens the door for the neglect of official duties. The physician must devote his entire time and professional skill to the Indians and agency employees.

"He should at all times try to overcome the evil influence of the native medicine men, to abolish their superstitious rites and barbarous customs, to gain the respect and confidence of the Indians, and to extend his influence among them by kind treatment, exemplary habits, and prompt attention to the cases requiring medical assistance. He should be governed by the highest code of professional conduct.

"The agency physician is required to attend not only those who call upon him at his office, but also to visit the Indians in their homes, and in addition to prescribing and administering needed medicines, to do his utmost to educate and instruct them in proper methods of living and of caring for health.

"He should exercise special care in regard to the sanitary condition of the agency and schools, and promptly report to the agent any condition, either of buildings or grounds, liable to cause sickness, in order that proper steps may be taken to remedy the evil.

"The physician is required to make regular visits to the Indian schools, and during such visits he should give short talks to the pupils on elementary principles of physiology and hygiene, explaining in a plain and simple manner the processes of digestion and assimilation of food, the circulation of the blood, the functions of the skin, and other organs and tissues, by which they may understand the necessity for proper habits of eating and drinking, for cleanliness, ventilation, and other hygienic conditions. The correct manner of treating emergencies, such as dangerous hemorrhages, syncope, prostrations from heat, and the like should also be explained.

"Classes should be formed, composed of the most advanced and intelligent pupils, for special instruction by physicians in regard to nursing and care for the sick, administering medicines, and preparing food for invalids, and any other points of like character on which it would be proper to give such pupils instruction.

"A full statement of what the physician has done in the directions above noted, should accompany his monthly reports.

"Monthly reports must be made to the office upon blanks furnished for the purpose, showing the number of cases and the nature of the diseases treated, care being taken to note that all the footings are correctly made, that all the cases appearing as treated are properly accounted for, and that the cases remaining under treatment at the end of each month are properly carried forward to the report of the succeeding month. Indian sanitary and health statistics should be full, accurate, and absolutely reliable.

"In connection with the monthly sanitary report the physician must, from time to time, note the progress which the Indians are making toward abandoning their medicine men and adopting rational methods of treating and nursing the sick. Special attention should be given to the matter of hospitals.

"The agent, being a bonded officer, is responsible under his bond for all medical supplies at his agency, and the physician must exercise prudence and sound judgment in expending such supplies. At the end of each quarter a report of medical property must be made on the proper blanks and handed to the agent to be forwarded with his accounts to this office.

"Harmony is essential to the proper conduct of an agency, and the physician, though appointed directly by this office, must treat the agent with proper respect, promptly and cheerfully obeying all orders issued by him."

The commissioner in his report to Congress made the following recommendations in regard to hospitals:

"There is an urgent need for the establishment of hospitals. Many of the physicians are doing excellent service among the Indians under their care, and to a great extent are destroying the influence of the medicine men, but they are continually hampered in their efforts by the unhygienic surroundings of their patients, the lack of proper food, and the impossibility of devoting proper time and attention to each patient on account of the number of Indians and the extent of the reservations under their oversight. With incompetent nurses to care for the patients in the absence of the physician, it is next to impossible to have any instructions, however simple, properly carried out.

"Many of the difficulties encountered would be obviated if a hospital was constructed at each agency for the treatment of cases requiring the constant attention of the physician and the care of trained nurses. Small buildings suitable for the purpose could be erected at comparatively slight cost to begin with, and should the necessity for the service increase the hospital facilities could be gradually enlarged to meet the requirements.

"But few additional employees would be required in consequence of the establishment of such hospitals. For each hospital a steward, a matron, one or two nurses, with a cook, a laundress, and a servant would be sufficient. Intelligent Indians who have attended the various training schools can be found at nearly all the agencies and could be utilized for the positions mentioned, as they would be under the constant supervision and direction of the physician, and being accustomed to obey orders would in most cases follow his instructions. The salary list would be quite small considering the benefit that would be derived from such expenditure."

PLEA FOR ADDITIONAL HOSPITALS.

In 1889 there were four hospitals in the service and the commissioner in his plea for additional hospitals stated the following:

"Wherever hospitals have been established they have, so far as I am informed, been fruitful of good results, and I am firmly convinced that by judicious management a small hospital at each of the agencies can be made an important factor in furthering the work of civilization among the Indians.

"In this connection I believe it would result in great good to the Indians if instructions in the art of nursing were given in the Indian training schools, as it would impress upon the youth who attend these institutions the beneficial results obtained from rational care of the sick as contrasted with the methods of the medicine men."

1902: The commissioner in his report to Congress in 1902 stated the following:

"There still exists among the Indians the same urgent and pitiful need for proper medical attendance and hospital service to which I referred in my last annual report. It is simply absurd to attempt, with only one physician, to care for the wants of more than 5,000 Indians, scattered over a territory almost as large as Connecticut, as at Pine Ridge, for instance; or as at Navajo, where the Government provides one physician for 18,000 Indians scattered over a territory of 12,000 square miles."

1907: The International Congress on Tuberculosis held in 1907 helped to awaken an interest in the tuberculosis problem among Indians. Dr. Ales Hrdlička in preparation for data to be presented to this congress, made a rapid survey of a number of Indians in different tribes and in different sections of the country and reported finding an exceedingly high prevalence of tuberculosis.

1908: In 1908 Commissioner Francis E. Leupp ordered a special survey to determine the prevalence of tuberculosis at Haskell Institute, a large nonreservation school. Not only was tuberculosis prevalent among the pupils here to an alarming extent but sanitary conditions in the school and the personal hygiene of the pupils were found to be such as to favor a spread of the disease. The dormitories were overcrowded, poorly lighted and ventilated. The pupils slept two, three, or more in single beds. Both pulmonary and glandular cases were found occupying beds with supposedly healthy pupils. Common towels, common drinking cups, and no fresh air in the dormitories were the rule rather than the exception. No attention was paid to decayed teeth and tooth brushes were not regularly used or their use insisted upon. Spitting on the floor was a common occurrence. These conditions existed not only in this school, which was excellently equipped otherwise, and was one of the best in the service, but they also existed throughout the Indian schools, the great majority of which were boarding schools, and tuberculosis was spreading rapidly both at home and in these institutions.

The conditions existing at the Indian homes at this period varied greatly throughout the country, depending on many factors such as climate, occupation, water and fuel supply, success of crops, financial resources, and degree of education or ignorance, as well as the tribe to which the Indians belonged and their customs and traditions. The type of home varied from the most primitive shack or shelter through an ascending scale of one, two, and more room houses. In many localities substantial houses built by the Government for the Indians were in just as insanitary condition through the habits of their occupants as the more primitive shacks or one-room houses.

Scarcity of fuel in some places influenced the use of small one-room homes, and the concentration of all family life and domestic activities within a small crowded area. Very few homes were furnished with running water, and in many communities the water supply was limited. These factors influenced greatly the standards of cleanliness, and also the habits and customs. Soiled clothing and bedding, as well as dirty dishes and cooking utensils, were frequently the rule, and with the general absence of screens during the warmer months, swarms of flies infested the food and were constantly present about the sick, as well as the well. Disposal of excreta was in accordance with the primitive custom, and this too added to the health menace of the home. In many homes the floors were kept in an uncleanly manner. Many had dirt floors, and spitting on the floors was considered good form. Windows were seldom or never open during cold weather. Under such conditions the spread of tuberculosis in a home once infected was inevitable, and this disease and also trachoma were rapidly spreading.

Agency physicians were employed at the various agencies, usually one at each agency, and contract physicians attended the sick at the majority of the nonreservation schools. The medical work consisted largely of dispensary prescribing of various drugs, and treatment of sick Indians on reservations by calls, and medicinal aid. Some minor surgery and first-aid was offered, but there were insufficient facilities as a rule, to allow major operations or hospital treatment. There were a few school hospitals at the larger nonreservation schools, such as Carlisle, Haskell, Chilocco, Riverside, and Chemawa. These hospitals employed one trained nurse each.

The tuberculosis investigation made at the Haskell Institute revealed that there were over 100 pupils infected with this disease. Measures were immediately taken to improve the situation, and infected pupils were sent to their homes. Suspicious cases were isolated and kept under observation. The dormitories were thoroughly ventilated, and regulations requiring ample air space for pupils in dormitories, and forbidding pupils to sleep more than one to a bed were promulgated and enforced throughout the Indian School Service. Sleeping porches were built on the Haskell School Hospital, and pupils under observation were given the opportunity of open-air sleeping. Regulations were also issued to the Indian schools throughout the service requiring the use of individual towels.

The revelations of insanitary conditions and the prevalence of tuberculosis at Haskell centered the attention of the Indian Bureau on the schools as a starting point for the campaign against tuberculosis. The physician making the investigation, Dr. Joseph A. Murphy, was appointed medical supervisor, and directed to investigate tuberculosis and sanitary conditions in all Indian nonreservation schools. In this and subsequent work he was ably assisted by Drs. R. L. Russell, Jacob Breid, and Ferdinand Shoemaker.

1909–10: Over a year was spent in this work, during which the schools were systematically inspected for insanitary conditions and pupils physically examined. The results of this inspection were the correction of many insanitary conditions in schools, the construction of sleeping porches, on school dormitories, and at school hospitals; the recognition of the existence of numerous cases of tuberculosis among school pupils and the exclusion from school of active cases.

It became increasingly evident that a general educational campaign was urgently needed which would reach not only the school pupils, but also impress the adult Indians to such a degree as to influence their habits with respect to general sanitation, and the prevention of the spread of tuberculosis, as well as the care and treatment of cases already existing.

The health rules advocated by the Association for the Prevention of Tuberculosis, of Washington, D. C., were printed with a slight modification and posted throughout the Indian Service in schools and on reservations. A simple pamphlet, suitable for use in the schools, adapted to the understanding of the Indians, and illustrated with photographs taken from actual Indian environment was written by Doctor Murphy, the medical supervisor, and copies distributed to all Indian school pupils capable of understanding it.

1911: In 1911 the health work had greatly increased throughout the Indian Service. The force engaged in this work consisted of one medical supervisor, 100 regular and 60 contract physicians, 54 nurses, and 88 field matrons. There were also 1 assistant medical supervisor, 1 supervisor of field matrons, and 2 specialists employed in the treatment of trachoma at the trachoma hospital, at Phoenix, Ariz. Commissioner Valentine in announcing his policy in dealing with Indians, placed health as of first importance and emphasized the prevention of disease, increase of personal efficiency, and the care of those already infected. A house-to-house canvass was made by physicians throughout the service to obtain information in regard to living and hygienic conditions in the home, and to teach the danger of tuberculosis, trachoma, and other infectious diseases.

This house-to-house canvass gave gratifying results, some physicians reporting 50 per cent of the homes in many districts as remarkably improved on their second visit. Stereopticon slides and motion-picture films, illustrating good and poor sanitary conditions in the homes, and showing the method of the spread of disease were prepared, and lectures were given with the use of these films and stereopticon slides by the medical supervisor, the assistant medical supervisor and by physicians throughout the service. Stereopticon slides were sent to the superintendents of the Indian reservations for use in educational work. In the schools, a campaign was made to remove toilets and bathrooms from basements and install them in separate structures or annexes, above ground, connected with the main buildings by covered passages. Many underground school playrooms were also removed. Four tuberculosis sanatorium schools were established, one at Phoenix, Ariz., with 65 patients; one at Laguna, with 25 patients; one at Fort Lapwai, Idaho, with 120 patients; and treatment was also given to tuberculous Indians at Fort Apache, and at Salem, Oreg. Although the results at Fort Apache and Salem were not as good as at the other places, the general results showed that from 10 to 11 per cent of the patients apparently recovered, and 90 per cent showed marked improvement.

Eight hundred cases of trachoma were treated at the trachoma hospital at Phoenix, Ariz.

1912: An extensive campaign was started in 1912 to educate all pupils in the schools in the cause, prevention, and treatment of tuberculosis. "Tuberculosis year" was celebrated by a written competitive contest. Arrangements were made to award gold, silver, and bronze buttons to pupils as prizes in a competitive composition contest on the subject of tuberculosis, with the purpose that the primary educational idea for the entire year would be the preparation of the pupils for this essay, and that a supreme effort should be made by all classroom teachers to impress upon the children all of the known practical facts in regard to this disease. At the end of the school term the pupils were given the pamphlet on tuberculosis published by the service, which they had used as a textbook, and were requested to take it to their homes and read it and explain it to their parents. The results of this phase of the campaign were remarkable. At the end of the "tuberculosis year" pupils went home and exerted a marked influence upon the life and habits of the family from the standpoint of improvement of sanitary conditions and measures for the prevention of the spread of tuberculosis. It might be said that at that time the Indian school children knew more about the prevention and treatment of tuberculosis than contemporary children of any other race. On the reservations specially prepared motion pictures, illustrating the prevention of the spread of tuberculosis in the Indian homes and Indian environment, were shown. Lectures were prepared for use with these stereopticon slides and portable stereopticon outfits were secured, and a campaign started with the use of this material, which continued without intermission for the next eight years. On every reservation throughout the country, and in every school these slides were shown and explained. In the most remote portions of the Indian reservations wherever a group of adult Indians could be assembled these lectures were announced and held. It was an unusual event in the lives of many of the Indians to witness these pictures and to hear these lectures, and, no doubt, they made a deep impression. The tuberculosis campaign was the initial purpose of this educational work, but owing to the prevalence of trachoma among the Indians, a campaign against trachoma was added and both subjects were stressed in the lectures and pictures.

A supervisor whose special responsibility was the supervision of field matrons directed her work with these employees in the interest of carrying the campaign against tuberculosis and trachoma into every home possible.

The essay contest was considered such a success by the Indian Bureau that the idea was repeated, and various topics were assigned for a succession of years, such as "Trachoma," "A Sanitary Home," "Citizenship," and others.

In 1912 considerable data had been gathered for presentation to the National Legislature, and a special message was sent by President Taft to Congress, asking a special appropriation of $253,350 for health work among the Indians. The Budget included in this request for special appropriation such items as $100,000 for a central hospital for adult tuberculosis cases, $8,400 for two additional medical inspectors, $4,200 for an assistant supervisor of field matrons, and for items for the increasing of the number and salaries of physicians, nurses, and field matrons; and also items for a central pathological laboratory, for making provision for transportation and equipment of physicians, field matrons, and nurses, and for the correction of sanitary defects in Indian homes, the building of screened sleeping porches on schools and hospitals, and for the equipping of schools and hospitals, and for the purchase of playground apparatus, medical literature for physicians, and pamphlets, post cards, and placards on health

1913: During the year 1913 an additional sanatorium school was established at Toledo, Iowa, with a capacity of 65 pupil patients, and the ophthalmologists traveling in the field were increased from two to six, and were assigned to districts.

In accordance with the appropriation by Congress, the United States Public Health Service detailed 13 medical officers to make a survey of the Indian schools to determine the prevalence of tuberculosis and trachoma. This survey was intended as an investigation to confirm the need for increased health appropriation for the Indian work. The investigation continued from September to December, 1912, and the results were published as Senate Document 1038, Sixty-sixth Congress. This report showed tuberculosis to be greatly in excess among the Indians. Ninety per cent of the school children examined during the investigation were positive to the Von Pirquet test.

1914: With attention constantly directed to the continued prevalence of tuberculosis, and no treatment facilities for adult cases yet provided, there began a systematic effort on the part of the Indian Bureau to provide hospital facilities. Request for the local establishment of hospitals came from all sections of the country. Plans were prepared for types of hospitals suitable for this work, appropriations were secured, and hospitals started on numerous reservations. Six hospitals were under construction during this year, there being, at this time, 51 hospitals in the service, with a total capacity of 1,432 patients.

Data gathered during the year showed that out of 67,895 Indians examined for various purposes, 8,245 were found to be suffering from tuberculosis and 13,841 from trachoma. The death rate among the Indians for the year was 30.76 to the thousand of population, the percentage of deaths due to tuberculosis being 31.83 per cent. The birth rate during the year was 38.79 to the thousand of population.

Other points stressed during the year in the Indian school service were: Dormitory space, playground equipment, special nourishing food in addition to the regular ration for undernourished pupils, monthly weighing and measuring, and constantly watching the pupils found to be underweight, the Pullman towel system, daily physical training, and regular talks on sanitary matters. This was in addition to the home training conducted by field matrons on the reservations. School dentists were also appointed, five in number, and were assigned to districts to care for the teeth of all school pupils.

1915: In 1915 the medical force continued to increase; two additional dental positions were established, and one additional special ophthalmologist was added. Special clean-up days were observed at the various schools and on reservations. Four hospitals and six sanatoria were under construction during the year. The capacity of the sanatorium school at Laguna was increased to 34 patients, the one at Toledo, Iowa, was increased to 85 patients, and the sanatorium schools at Phoenix and Fort Lapwai were caring for 100 pupils each. Arrangements were being made for the erection of hospitals at Carson, Blackfeet, Turtle Mountain, Cheyenne and Arapaho, Pima, and Mescalero. Considerable stress was laid on the better disposal of sewage and the protection of water supplies and funds for this purpose were allotted and used on many of the reservations.

The field dentists reported a close relation between the dental defects found among Indians and systemic disease.

1916: During the year 1916 the prevention of infant mortality was especially stressed. A campaign to "Save the babies" was organized throughout the service. Special attention was also paid to education and publicity measures, and the service journals were furnished with press dispatches on the prevention of disease from the Public Health Service, the National Association for the Prevention of Tuberculosis, and from other sources. Medical journals were supplied physicians and special medical pamphlets were distributed. Indian homes where the Indians refused to take the ordinary precautions against the spread of tuberculosis were placarded. Of the hospitals recently completed, or in course of construction, were those at Carson, Pima, Mescalero, Navajo, Cherokee, San Juan, Tohatchi, Cheyenne and Arapaho, Turtle Mountain, Blackfeet, Choctaw Chickasaw, Crow Creek, Hoopa Valley, Jicarilla, and Spokane. The Genoa school hospital was enlarged during this year.

1917: In addition to the "Save-the-baby" campaign, which was continued with the other measures already started, a campaign against maternal mortality, in which emphasis was placed on sending confinement cases to the hospital, was started. This campaign met with much success in localities where hospitals were available for such purpose.

Two health drives were made among the Five Civilized Tribes, one among the Cherokees and the other among the Choctaws.

1918: During the year the health work was much handicapped by the war—the loss of workers and the increased cost of supplies. The "Better-baby" campaign was continued, but all other health work was curtailed.

1919: During the year 1919, the medical force was gradually being refilled. The commissioner placed stress on the recognition of nutrition as a factor in health, depending upon industry, agriculture, and thrift, and encouraged the stressing of these ideas. In his report he called attention to the advancement of the medical work among Indians, stating that from primitive dispensary clinics of early days have developed the hospitals and sanatoria. The guess methods of diagnosis have given place to scientific tests, and the former occasional word of admonition on health has been superseded by graded instructions in hygiene and physical culture, which extends through all grades as outlined by the course of study. The number of hospitals slightly increased this year.

1920: The commissioner's report for this year shows that the system of sanatoria, better dietaries, dissemination of knowledge in regard to disease, the regular weighing of pupils, improved medical and nursing personnel, frequent medical inspection, and the increased interest in health have all been factors which operated to stamp out tuberculosis from the schools. The quota of medical force had not yet been filled, and it was realized that better salaries would be required to obtain better employees.

1921: The organization for health work in 1921 consisted of one chief medical supervisor, 6 special physicians, 7 dentists, 175 physicians, including contract physicians, 100 nurses, 6 traveling nurses, and 87 field matrons.

The work as outlined in the previous year was being continued and meeting with much success. Eighty-five hospitals or sanatoria were in operation, and a gradual reduction was reported in the death rate. In 1913 the general death rate among the Indians was reported to be 32.24 per thousand population. In 1918 it had been reduced to 29.42 per thousand, while in 1920 it was 22.33 per thousand. The birth rate in 1918 was 29.42 per thousand, and in 1920 it was 31.67 per thousand.

The growth of hospitals and sanatoria in the Indian Service may best be seen by the following table:

	Hospitals.		Hospitals.
1888	4	1916	81
1900	5	1917	81
1911	50	1918	87
1912	53	1919	87
1913	48	1920	87
1914	51	1921	85
1915	74	1922	73

The increase in the number of persons doing health work in the Indian Service is shown by the following table:

Year.	Physicians.	Nurses.	Hospital employees.	Field matrons.	Year.	Physicians.	Nurses.	Hospital employees.	Field matrons.
1895	74	8	7	3	1918	200	99	100	87
1897	84	24	21	16	1919	200	100	100	87
1898	83	32	32	30	1920	200	100	100	75
1899	87	30	19	29	1921	200	100	100	75
1900	86	25	15	21	1922	200	100	100	75
1905	96	33	10	40					

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